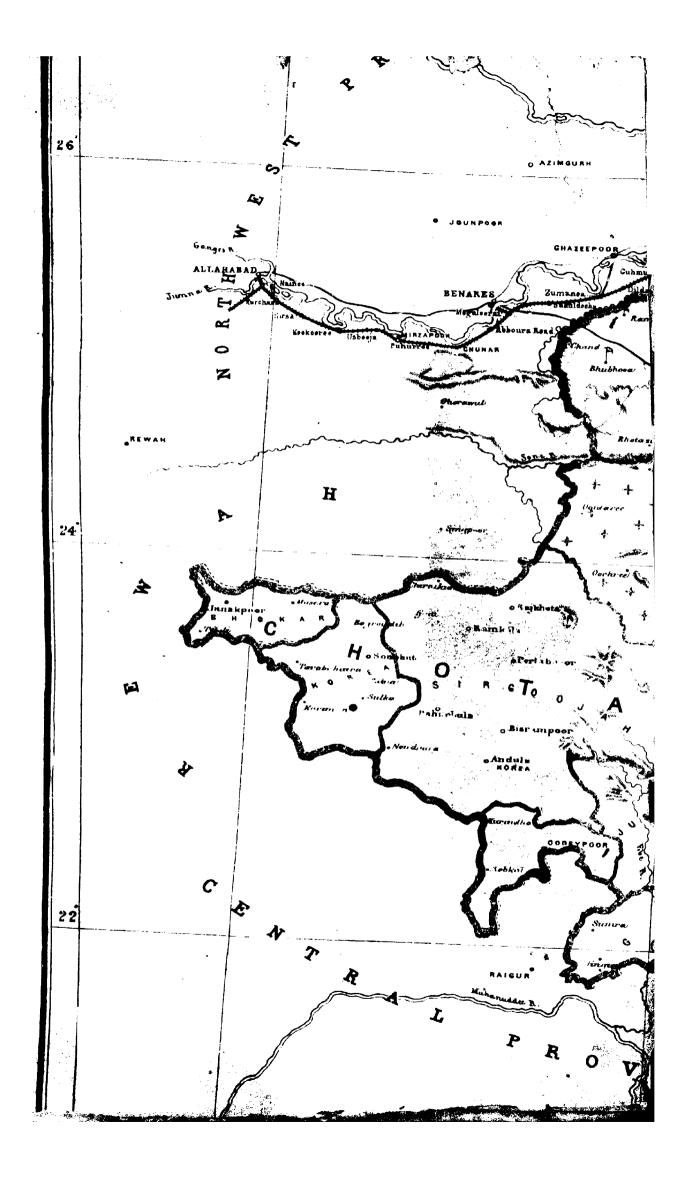
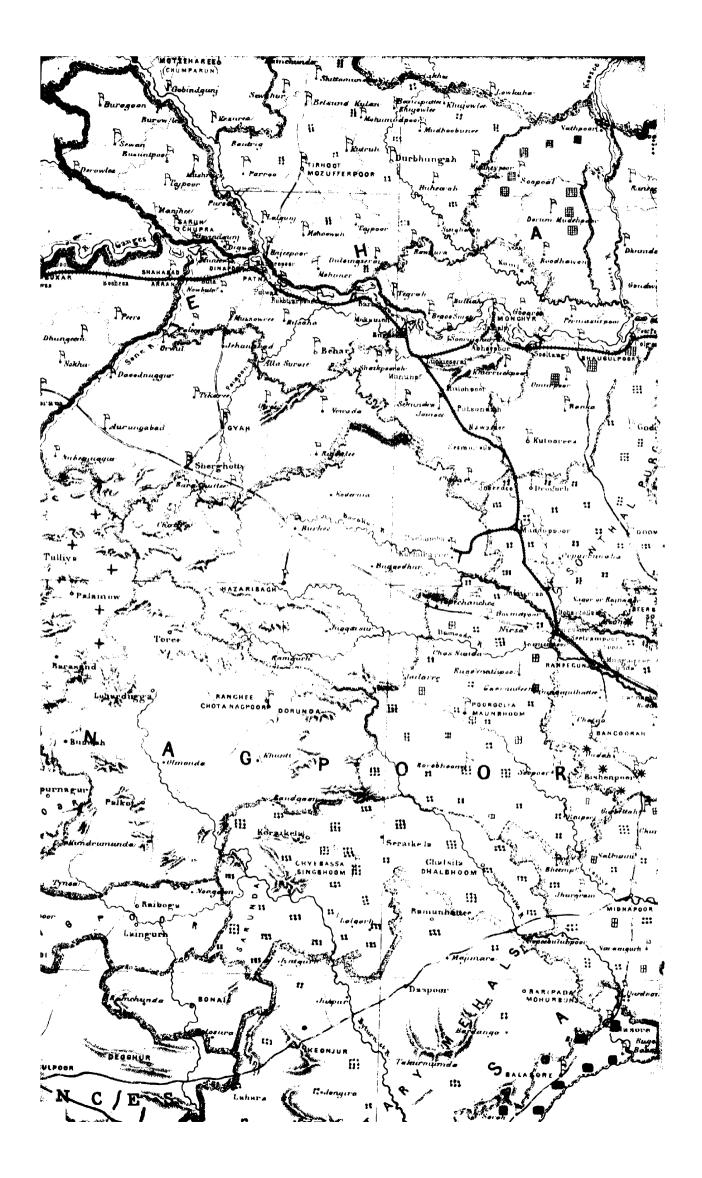
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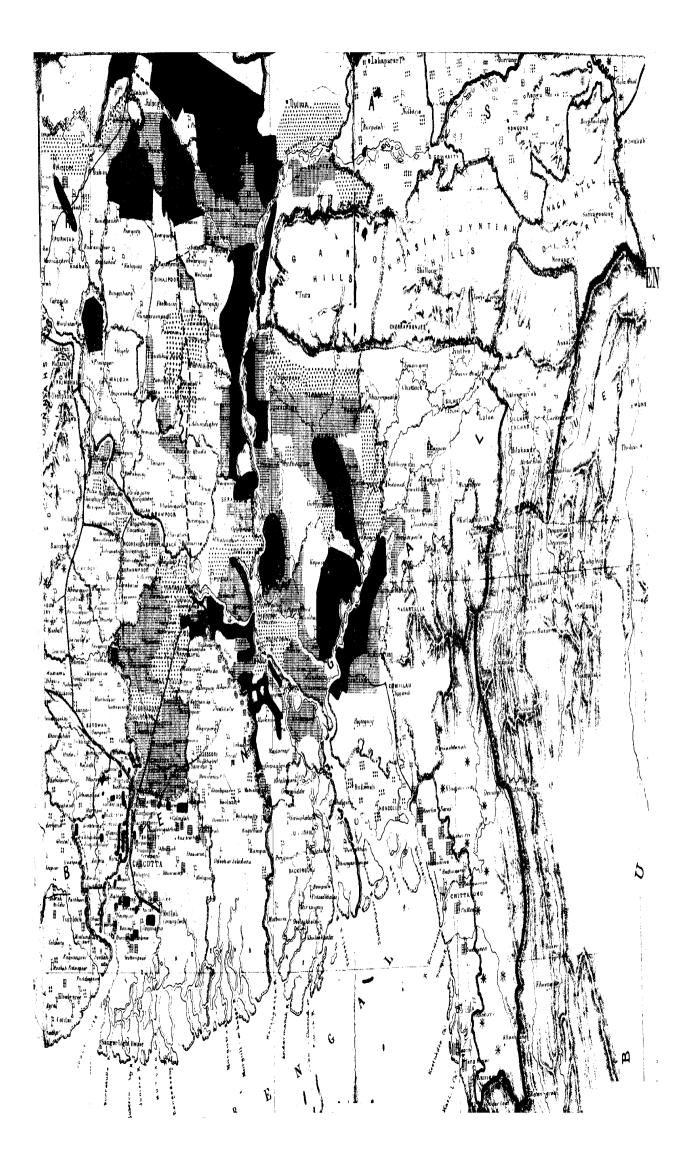
Presented by

Dr. Baridbaran Mukerji

RMICL-8







REPORT

ON THE

CULTIVATION OF, AND TRADE IN, JUTE IN BENGAL,

AND ON

INDIAN FIBRES

AVAILABLE FOR

THE MANUFACTURE OF PAPER.

BY

HEM CHUNDER KERR,

Deputy Magistrate, on special duty.

Calcutta:

PRINTED AT THE BENGAL SECRETARIAT PRESS.

1874.

RESOLUTION.

AGRICULTURAL DEPARTMENT.

Calcutta, the 30th March, 1874.

READ-

Report on the cultivation of, and trade in, Jute in Bengal and on Indian Fibres available for the manufacture of paper, by Hemchunder Ker, Doputy Magistrate, on special duty.

The Lieutenant-Governor looks upon this report as a most valuable one, and has no doubt that it will be so regarded by all who are interested in the production of the fibre. The report is minute and exhaustive, teeming with information on every point connected with the cultivation and uses of the plant, and the best thanks of the Lieutenant-Governor are due to Mr. Hemchunder Ker for the care, the elaboration, and the ability with which it is marked. His Honor greatly laments the death of Mr. Hemchunder's colleague in the Commission, the late Mr. Anstruther, whose seizure with acute illness while in the active and zealous performance of the duty which he had undertaken, and its rapid course and fatal termination, prevented the Government having the benefit of his inquiries in the shape of any notes, or records of his own. Mr. Hemchunder pays a just tribute to the assistance received by him from his colleague, and the Lieutenant-Governor regrets deeply the death of this gentleman, while employed in the public service.

As to the origin of the word jute, the Commission trace its introduction at the close of last century to Dr. Roxburgh, who, it is suggested with much probability, learned it from his Uriya mallies in the old Company's Botanical Garden at Scebpore. The words jhout and jhot are the common vernacular names of the fibre in the Cuttack, Pooree, Balasore and Midnapore districts, and as the old East India Company had extensive roperies and canvas manufactories on the sea-board of Orissa, there can be little doubt that the conjecture of the Commission as to the derivation of the word is well founded, and that the modern term jute is simply the Anglicized form of the Orissa jhot and the

ancient Sanskrit jhat.

As to the precise plant which yields the fibre, the Commission has ascertained beyond question that the jute of commerce is yielded indifferently from two distinct species of Tiliacca—the Corchorus olilorius and Corchorus capsularis. The leaves of both plants are extensively used as potherbs by the people. Regarded as vegetables, they are both known all over Bengal, in common with other species of the same order, by the general term nálita, but the Bengallee name of the two special plants regarded as fibre-producers is pát. In current Bengali pát invariably means either the jute fibre or the plant that produces it, but the term in more general use in Eastern Bengal for the fibre of both species seems to be koshta. It may therefore be regarded as settled that we now know the precise plants which yield the fibre, and the names by which they are known. The plants are extremely alike in appearance, leaf, color, and growth, differing only in the formation of their seeds-pods, which last are totally different and most unlike one another; those of the C. capsularis being short globular and wrinkled, while those of C. olitorius are about the thickness of a quill and about two inches long. Both plants are annual, and grow from five to ten feet high, with a stalk about the thickness of a man's finger, seldom branching except near the top. leaves, which are of a light green colour and serrated, are four to five inches long and taper to a point. Several other species of the same plant are said to yield jute, but are not cultivated for their fibre, the species already named alone yielding the real jute. This fact was very clearly established in the course of the Commission's investigation by a series of experiments in the Royal Botanical Gardens with seeds obtained from all the districts in which the fibre is grown. The result showed beyond doubt that the real jute of commerce is the produce of one or other of the two plants named, and of them only. In Lower Bengal, generally, the two species appear to be grown indifferently; in the central and some of the eastern districts the *C. capsularis* largely predominates, while in the neighbourhood of Calcutta it is the *C. olitorius* that is chiefly cultivated, the well-known Lukhipore jute of Hooghly and the 24-Pergunnahs, known also as *desi* jute, being the produce of this

latter species.

Although the plant has been cultivated from time immemorial in the Lower Provinces, its export is a modern industry altogether; but the fibre has been cultivated largely for home consumption and for the manufacture of gunny from a very remote period. One or other of the two plants has been found in no less than forty-seven out of the fifty-eight districts of the Presidency. The attention of the Commission was especially directed by the Government to the importance of ascertaining what description of soil was most favorable to the growth of the fibre. The evidence collected upon this point is conflicting, but the thanks of the Lieutenant-Governor are due to the Commission for the effort made to obtain it. The soil requires to be subjected to systematic and extensive analysis before we can arrive at any absolute conclusion upon the point; but the Lieutenant-Governor observes that it appears to thrive on almost every description of soil except laterite. A light sandy soil also is not well suited to the plant, which seems most to flourish in a hot, damp atmosphere, with a heavy rainfall and rich alluvial soil. seasons of sowing and growth appear generally to be the same as those for the early rice crop of Bengal. The oftener and more thoroughly the land is ploughed, and the more manure that can be given it, the better. The seed is sown broadcast from the middle or end of March to the beginning of June, and the plant is cut from the middle of August to the middle of October, and in some of the districts earlier. The Commission direct prominent attention to the extreme carelessness of the cultivators in the selection of the seed. In most instances a corner of the field, or a few stunted wayside plants are left to mature the seed, not the slightest attempt being made to select it; and if in these circumstances a real deterioration of the plant had taken place, a fact which the Lieutenant-Governor is glad to see the Commission doubt, little wonder need be expressed. Neither selection nor change of seed seem ever to be resorted to, and if the attention of Government is ever directed to improving the cultivation of the plant, the first step must be a reform in this fundamental point of good husbandry.

The districts which chiefly yield the fibre, grouped geographically, and the area under cultivation in 1872, are according to the report as follows, but

the figures are approximate only:

	Norther	n Bengal	•		
		Ū		Acres.	
Pubna	***		•••	122,000	
Dinagepore	•••			117,000	
Rungpore			•••	100,000	
Bograh	•••			46,000	
Rajshahye	•••		•••	14,000	
Purneah				75,000	
Julpigoree				50,000	
Goalpara				15,000	
Cooch Behar	•••			25,000	
400000	***		***		564,000
	Eastern	Districts	; ,		
Mymensingh	•••			84,000	
Tipperah	•••		***	78,000	
Dacca	•••		•••	40,000	
Furreedpore				16,000	
Backergunge		•••	***	11,000	
	•••	•••	•••		229,000
	Districts ro	und Calci	uta.		
24-Pergunnahs				47,000	
Hooghly	***	•••	•••	32,000	
moogniy	***	•••	•••		79,000
	19 other Dis	tricts toge	ether	•••	49,000
		_	f15 4		(01.000
			Tot	IA	921,000

This was the acreage under jute in the great producing season of 1872. The area is said to have been no more than 517,000 acres in 1873. The northern and eastern districts may almost be said to engross the cultivation, showing a total area of 800,000 acres under the plant in 1872 against 125,000 only in the rest of the Presidency. The devotion of so large an area to this export in the Rajshahye Division in particular is an economic fact of considerable interest at the present moment, and the Lieutenant-Governor notices the fear expressed by the Commission that the cultivation has trenched injuriously upon land which was formerly devoted to food-grains; the opinion of the Commission being that at least two-thirds of the area under jute are lands that have been alienated from food-grains.

The suggestions of the Commission for the improvement of the staple are confined to the selection of the seed, the observance of a more careful rotation in growing the crop, and to the improvement of the processes of cutting and steeping the fibre; and the Lieutenant-Governor commends this part of the

report to the attention of all who are interested in the trade.

The influence of the cultivation on the condition of the people appears to have been decidedly good. The testimony is uniform that it has enriched the cultivator, while the deleterious effects of the manufacture upon the health

of the people seem to be very problematic.

As to an alleged deterioration in the staple, the Licutenant-Governor has little doubt that the Commission rightly attribute this belief to the fact that the high prices which have prevailed of late years have stimulated the production of large quantities of inferior jute or badly prepared jute. It is not that there is less good jute produced than formerly, but that a larger proportion of inferior fibre, grown on any and every soil, has come into the market under the stimulus of prices; and still more that when the quantity grown is large, the labor and care devoted to its preparation are comparatively small. The Commission record their conviction that "there is nothing to show that there has been any deterioration in se in the character of the jute or any general falling off in the quality of the fibre."

The local manufactures of the fibre into cordage and twine, and into gunny-cloth and gunny-bags, are too well known to need remark; but the Commission have usefully reviewed the purposes to which the fibre is turned in the several districts in which it grows. It is used for paper-making in Maldah, Rungpore, Dacca, Mymensingh, Backergunge, Noakholly, and Cuttack.

The Lieutenant-Governor desires to thank the Commission for the interesting supplement they have given to the report on the various fibres used for the manufacture of paper in Bengal. This part of the report will be read with interest, His Honor believes, by the Government of India, at whose request it has been prepared, and he commends it to the notice of the mercantile community of Calcutta.

By order of the Lieutenant-Governor of Bengal.

H. L. DAMPIER,

Secy, to the Govt. of Bengal.

No.

Copy forwarded to

By order of the Lieutenant-Governor of Bengal.

R. KNIGHT,

Asst. Secy, to the Govt. of Benyal.

CALCUTTA,

The 30th March, 1874.

A. St. L. B.

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Page	i	line	16	for	Zeylarica	read	Zeylanica.
,,	,,	,,	22	,,	Sesbanca	,,	Sesbania.
,,	,,	,,	23	,,	Crotatorea	,,	Crotalarea.
٠,	٠,	,,	7	,,	Capsularies	,,	Capsularis.
,,	ii	,,	10	,,,	Chutteer	"	Chuttee.
,,	,,	,,	52	,,	Banipore	,,	Baruipore.
1;	,,	,,	67	,,	Goidparah	,,	Goalparah.
,,	1	,,	19	,,	Sunk	1,	Sank.
"	10	,,	60	,,	Medical	,,	Mediceval.
,,	18	"	28	"	(5 chat)	"	Chat (5).
,,	,,	,,	41	,,	Jhut-jhutá	,,	$Jhut = Jhut \acute{a}.$
"	19	,,	26	,,	Barleria -	"	Barlerea.
23	,,	,,	27	,,	Jata and Jútá	,,	$oldsymbol{Jatá}$ and $oldsymbol{Jutá}$.
,,	39	,,	2	,,	Plant antedote	"	Plant:—antidote.
,,	44	,,	23	,,	${f A}$ creal	"	Aerial.
,,	,,	,,	41	,,	Káchúr i	"	$oldsymbol{K}$ ach $oldsymbol{u}$ ri.
,,	46	,,	29	,,	Will not	"	Would not.
,,	47	٠,	22	,,	Imminent	,,	Eminent.
,,	51	,,	26	,,	Are now	2)	Is now.
••	,,	٠,	27	,,	They will	,,	It will.
,,	٠,	,,	59	,,	Ryots	,,	Ryot.
٠,	52	,,	20	,,	1862-63, 12,628,110	,,	1862-63 to 12,628,110.
,,	55	,,	31	,,	Small prices fit	,,	Small and fit.
,,	56	,,	17	,,	Foriegn	,,	Foreign.
,,	83	**	39	,,	Have now been	,,	Have been.
,,	89	,,	25	,,	Omit the words " spoken	of in Seebs	saugor."
,,	91	,,	16	٠,	Culcuttensis	read	Calcuttensis.
,,	106	,,	25	,,	Are offered	,,	Be offered.
,,	107	13	4	,,	Mills, 1	,,	Mills, I.

Appendix B.—Statement No. 40, p. xxix, second col., line 8, for "The quality has been gradually," read "The quality has not been gradually."

FROM BABOO HEM CHUNDER KERR,

On Special Duty to inquire into the Production of, and Trade in, Jule,

TO THE SECRETARY TO THE GOVERNMENT OF BENGAL,

IN THE STATISTICAL DEPARTMENT.

Dated Calcetta, the 18th December 1873.

SIR,

I have the honor to submit the following report on the production of, and trade in, jute in the provinces of Bengal, Behar, Orissa, and Assam, with special reference to the points noted in the resolution of His Honor the Lieutenant-Governor of Bengal, dated the 4th February 1873 (Appendix A., p. i).

- 2. By a resolution dated the 5th February 1873 (Appendix A., p. ii), the inquiry into the subject was referred to a Commission consisting of Mr. Hamilton Anstruther and myself. But before the resolution had been officially communicated to us, we had already entered upon our duties on the 30th January under demi-official instructions received through His Honor's Private Secretary.
- 3. I have to deplore the lamentable death, in the midst of our labours, of my able and efficient colleague Mr. Hamilton Anstruther. His illness was brought on by his exertions in the labours of this Commission, and he sunk under it in September last. I feel deeply his loss, as it deprived me of a colleague from whose cooperation and advice I had hoped to benefit largely in the completion of the inquiry with which we had been entrusted. He left no notes or memoranda of his observations. I have been thus compelled to prepare this report without my esteemed colleague's assistance, and must crave the indulgence of Government for any shortcomings which that assistance might have supplied.
- 4. Before proceeding to the mofussil to prosecute local inquiries, we employed ourselves for a short time in collecting such information regarding jute as was available either in published works, or in official records, as well as regarding the trade in that fibre, and the alleged deterioration in its quality. We also circulated among divisional and district officers, as also among private gentlemen, traders and brokers in and about Calcutta, a set of questions on the subject, so framed as to elicit all the information that could be easily collected.
- 5. On the 19th April last we left the presidency on a tour in the jute-growing districts, and the memorandum below shows in what order, and at what times, we visited the different places in which we made our inquiries, whether jointly or singly:—

Baraset, 24-Pergunnal	18	•••	22nd	March	187	3, jointly.
Barripore ,,		•••		Λ pril	,,	,,
Ooterparah, Hooghly		•••	7th	99	,,,	"
Sindoori, Jessore	•••	•••	9th	"	,,	
Burdwan district	•••	•••	13th	"	,,	H. C. Kerr.

Dacca district		21st to 2nd May, jointly.
Mymensing district	100	3rd to 12th ,, ,,
Serajgunge, l'ubna	•••	26th to 24th
Kaligunge, Rungpore	•••	19th to 28th "H. C. Kerr.
Chilmani		29th to 31st ,, ,,
Goalpara district		2nd to 7th June, jointly.
Rungpore station		8th to 17th June, ,,
The stations on the Teesta	•••	18th to 22nd June, H. C. Kerr.
Backergunge and Furreedpore	. •••	10th to 28th August ,,

- 6. The inquiries we instituted in these places embraced—firstly, a minute inspection of jute-fields, a comparison of plants in different stages of growth, and an ascertainment of the causes which aid or check the development of the fibre; and, secondly, a careful examination of persons engaged in cultivating, or dealing in, jute, with special reference to the points on which His Honor desires information.
- 7. On the 10th April, and again on the 10th May last, we submitted for His Honor's information brief reports on the prospects of the jute crops and the probable quantity of produce during 1873, regarding which the mercantile community of Calcutta were at the time naturally very anxious.
- 8. On our temporary return to the presidency on the 30th June last,

 Mr. Anstruther was incapacitated by serious illness for further exertions in the duty he had so earnestly taken up, and ceased to act on the Commission.

9. With a view to separate the true jute from various other kinds of fibres commonly used, or known, in the country, we early directed our attention to collecting specimens of all such as were available in Bengal. Our researches resulted in the collection of the products of thirteen different species of plants, belonging to eight different natural orders, as follow:—

Malvaceæ.

- 1. Hibiscus mutabilis.
- 2. ,, cannabinus.
- 3. .. strictus.
- 4. Abelmoschus esculentus.

 $A maryllida oldsymbol{c} c oldsymbol{lpha}.$

5. Agave americana.

Liliaceæ.

6. Sanseveira zeylanica.

Asclepiadaceæ.

7. Calotropis gigantea.

Urticaceæ.

8. Urtica tenacissima.

Leguminosæ.

- 9. Sesbanea aculeata.
- 10. Crotalarea juncea.

Cannabinacea.

11. Cannabis sativa.

Tiliaccæ.

- 12. .Corchorus olitorius.
- 13. ,, capsularis.
- 10. All the four *Hibisci* yield fibres from their bark, but the first on the list is rarely cultivated for that purpose. Its bright, large, attractive flowers, which have the peculiar property of changing their colour from white to crimson in the course of the day, make it most welcome as an ornamental plant in gardens.

11. The H. strictus is also very little cultivated for its fibre. Dr. Roxburgh, however, says:—"Like many other of the malvaceous tribe, the bark of this species abounds in flaxen fibres; but in none have I found so large a quantity, equally beautiful, long, glossy, white, fine and strong as in this. To these promising qualities may be added the luxuriant growth and habit of the plant, rendering it an object deserving of every care and attention, at least until the real worth of the material is fairly ascertained."

12. The H. cannabinus is common in almost every part of India. Its native names are Ambarce, Western India and Central Provinces; Palangoo, Madras; Pooley numajec, Coimbatore; Gongkura, Telingas; Mestá pát, Bengal; Sunnee, Saharunpore; Wilatee (or foreign) sunn, Muttra; Deckanee hemp, Bombay; Ambya pát, Purneah; Kudrum, Behar; Gyal, Dukheen; Sunn kokla, Punjab; Patwá, Oudh; and Put sunn, Azimghur and Benares. Dr. Wilson, on the authority of a modern lexico-

grapher, supposes the Sanskrit name of the plant to be Náliká.

In Bengal it is extensively cultivated in Furreedpore and Backergunge, and in limited quantities in other districts. Its Cultivation and character of its fibre. Cultivation and character of its fibre. fibre is bright and glossy, but coarse and harsh to the touch, and on the whole inferior to true jute. The following is Dr. Roxburgh's description of this useful plant:—"It is much cultivated by the natives. Its leaves are in general used as an esculent vegetable, and taste something like sorrel. The bark is replete with strong and tolerably soft fibres, and is employed as a substitute for hemp, to which it is much inferior both in strength and durability. The usual time of cultivation is the cold season, though it will thrive pretty well at all times of the year if it has sufficient moisture. A rich loose soil suits it best. The seeds are sown about as thick as hemp, but generally mixed with some sort of small or dry grain, rendering it necessary to be sown very thin that the other crops (which is one of those grains that does not grow nearly so high) may not be too much shaded. It requires about three months from the time it is sown before it is fit to be pulled up for watering, which operation, with the subsequent dressing, is similar to that hereafter described for Crotalarea juncea."—(Royle on Fibrous Plants, p. 255). In the Purneah district it is sown in separate fields by itself, as is the case in some of the central and eastern districts; but in Behar and the North-West it is either sown along with arhar, or on the borders of fields sown with kodo and other crops. The fibre of this plant is sold along with jute, and as jute. It is employed in Bengal for all the purposes of jute, and also for making fishing nets and paper.

14. The Abelmoschus esculentus is cultivated largely all over India for its pods, which are eaten as a kitchen vegetable, both by Europeans and Natives; it is also used in the North-Western Provinces for clarifying sugar. Its fibre is harsh and brittle, for which reason it is not manufactured to any very large extent in Bengal; but in Mymensing and Dacca it is occasionally prepared for adulteration with jute. The defect in the fibre, it would seem, is due to the process adopted in making it, for in the Southern Presidency it is so manufactured as to retain considerable strength and pliancy, well suited to the manufacture of rope, string, gunny-bags and paper, and bearing considerable resemblance to the true hemp of Europe.—(Madras Selections, No. XXIII, p. 152). The quantity prepared annually is large, and there is an exportation which amounted in the year

1853-54 to 6,112 cwt., valued at Rs. 27,113.

Its native names are *Dhenros*, Bengal; *Vendee*, Madras; *Ram-tarái*, North-Western Provinces.

of India, and is not unoften cultivated as a fence for gardens, for which its prickly character and dense growth render it very suitable. Occasionally it is employed in the manufacture of fibre, but not to any extent, and never for trade. Its fibre, as ordinarily prepared, is harsh and brittle, though its colour is good. Under proper

management it would probably yield a stronger and better staple. It is well adapted to the manufacture of paper. Another species of aloe, A. perfoliata of Dr. Hunter, and A. indica of Royle, with red flowers, yields a better product. According to Dr. Royle its "fibre is white in colour, fine in quality, with sufficient tenacity for textile fabrics, and readily takes colours, as shown by the orange, red, and crimson coloured specimens sent by Dr. Hunter to England. The fibres are about two feet in length, and have considerable strength. A bundle of the fibres bore 160th, when a similar one of Petersburgh hemp broke with the same weight."—(Fibrous Plants, p. 51).

It is not mentioned as one of the fibre-yielding plants of Bombay; but it grows in Madras, where its fibre was employed for several years, instead of English hemp, in the arsenal. In the Punjab it grows well as a hedge plant,

but its fibre has not yet been utilized there on any large scale.

The Sanseveira zeylanica is an aloe like the last, and has been known and prized in India from remote antiquity under the name of múrvá or múrví. Its principal use in ancient times was for bow-strings; whence they have the derivative name Manu recommends it as the most appropriate material for the girdle or zone of the military class or Kshatriyas. It is at present known under the vernacular names of murgávi, murgá, and márul, and is "used for ropes, twine, thread, bow-strings and cord." It is also "considered valuable for the manufacture of paper at Trichinopoly" (Drury). It grows wild on the coast of Guinea and other parts of Africa, along the Bay of Bengal, in the Indian Peninsulas, on the Dindigal Hills, in Java, and on the coast of Dr. Buchanan found this plant employed for making cordage at Bangalore; and bow-strings are still made of its fibre in the Sircars and along the coasts of Bengal. In the interior of Bengal it is equally common and wild, but not so largely used for its fibre. The strength of its fibres has been tried by experiments noticed in detail in the Journal of the Agri-Horticultural Society of India (III, p. 23), and found sufficient to fit them for hawsers and cables; while their fineness and tenacity are attested by their being used by jewellers for thread to string pearls. The Rev. J. Garrow, it appears from a notice quoted by Dr. Royle, got some beautiful fibres prepared as soft and thin as human hair, and had some cloth made of them by native weavers, which he declares to be "as fine as he ever beheld." One of its Sanskrit synonyms is "guna," which also means a string. In its vernacular form, $g\acute{u}n$, it is applied to tow-lines. The Sanskrit goni, meaning "a sack," is the root of the Bengali word $g\acute{u}n$, "sack-cloth," and unmistakably also of the Indo-English gunny-cloth and gunny-bag, all derived from guna, a string, implying a cloth made of strings. In Telegu the word goni is preserved in its integrity, and in Tamil its first letter is modified, changing it thereby into koni. The Persian kundu, kunduj, kunu or gunu, all implying sacks, are also most probably modifications of the Sanskrit word.

is a valuable medicinal plant, and is largely used in Indian pharmacy. It grows wild on arid wastes, rubbish mounds, and other neglected places, whence it is collected for its milky juice, seeds, and flossy seed covering. The first two products are used in medicine, the last for the decoration of toys. The fibre prepared from its bark is of a superior quality, being from its thinness, tenacity, brightness and softness, fit for a variety of economic purposes. It is in appearance and strength closely similar to English flax, though the fibres are somewhat thinner. In Madras, where it also grows wild, it is selected by the natives as the strongest material for bow-strings, gins, and tiger-traps; but in Bengal it is never manufactured for trade. In Bombay it is known as a fibre-yielding plant, but does not appear to be cultivated to any extent.

18. Although only recently brought to prominent notice, the Rhea is by far the most valuable fibre-yielding plant produced in India, and is certain ere long to contribute a leading staple for the export trade of the country. It has been cultivated in

small quantities from time immemorial in Assam, and also in the districts of Rungpore, Dinagepore, and Sylhet. It is familiar to the people as the source of a strong fibre for fishing nets. Two varieties are known to them: the Dome rhea, or the cultivated variety, reared by a class of fishermen (Domes) for net and tackle; and the Bon rhea, or the wild kind. Botanically they are believed to be the same. The plant is common almost everywhere in Burmah, and the Shans cultivate it for its fibre, with which they manufacture a kind of linen. The Singpoos and Dhounneas of the north-eastern frontier also prepare a kind of cloth with it. They know it by the name of Pán. In the Malaya peninsula, and on the island of Java, its name is Ramee,* and in Sumatra Caloee. The Nepalese call it Leepeeah, and the Chinese Chu-ma or Ma, from which they manufacture their celebrated grass-cloth. In Dinagepore, Rungpore, and Goalparah, its vernacular name is Kankhurá.

Attention was first drawn to the fibre of this plant as a staple worthy of exportation at the beginning of this century, and Early notices. Dr. Roxburgh obtained from Bencoolen a few cuttings for propagation in the Hon'ble Company's Botanical Garden at Scebpore, in the year 1803. The cuttings readily took root, and multiplied freely; but it does not appear that a sufficient supply of fibre was obtained by the Doctor for despatch to England. In 1811 the yield of fibre in the Botanical Garden was large enough to enable Dr. Buchanan to send three bales of it to the Court of Directors. This sample was very highly spoken of, and a thread spun of it was reported to have borne a weight of 252lb, "whereas the weight required to be borne by Russian hemp of the same size in His Majesty's Dockyard was only 84lb." The Society of Arts of the time marked their sense of the value of this fibre by awarding a medal to Captain J. Cotton for introducing it to the notice of manufacturers in England. There was thus a good prospect opened for the cultivation of the plant and the manufacture of its fibre being taken up on a large scale; but somehow or other the subject was allowed to drop until the middle of this century, when the discovery of the Assamese wild Rhea by Captain Hannay again drew public attention to it. Captain Hannay, Colonel Jenkins, and Colonel Dalton, repeatedly brought it to the notice of the Agri-Horticultural Society of India, and several large samples were sent by different individuals to the Universal Exhibition of 1851, where they met with very honorable mention. Dr. Wallich, after carefully examining these samples, addressed a note to Mr. William Sangster of London, in which he said :-"The Rhea fibre you showed me is indeed a vast achievement. to speak decisively in this matter, because I utterly failed in producing the article, as did one far greater than me, namely, the celebrated Dr. Roxburgh. So much more credit is due to Colonel Jenkins and to Major Hannay for their complete success."

20. In 1853 Colonel (then Captain) E. T. Dalton forwarded to the Commissioner of Assam fifteen bales of Rhea Encouragement to its cultivation. prepared by Captain Hannay, and suggested the propriety of Government buying up at a premium as much of the Rheu fibre as could be had, and to do so for three or four years successively, to encourage the people to betake themselves to its cultivation on a large scale. This recommendation was, however, not adopted; but attention was directed to promote the cultivation of the plant at Saharunpore, Tenasserim, and other The efforts made in this direction proved everywhere successful, and an attempt made by one Mr. Roezl to introduce the plant into the southern states of North America in 1867 was pronounced to be eminently satisfactory. The plant in fact takes to any kind of soil, and, with proper irrigation and manuring, thrives well. In the damp-warm climate of Assam it grows so rapidly that five cuttings a year may be readily taken without any irrigation or manure—the average result being twelve maunds the acre. In the hot dry atmosphere of Saharunpore three cuttings have been very successfully taken without any injury to the parent stems.

[•] This name has been adopted in America, where a machine for dressing it has lately been constructed.

21. Everywhere, however, a serious difficulty was met with in separating the fibre from the stem with ease and economy.

To obviate this the Government of India recorded a resolution in 1869 offering two prizes—one of £5,000

and the other of £2,000—for a suitable machinery or process for separating the fibre from the bark and stem at a cheap cost, and laying down the conditions which the machinery or process was to fulfil. Orders were at the same time issued to extend the cultivation of the Rhea plant in the Saharunpore gardens, and in Dehra Doon. The advertisement which was issued in the following year in pursuance of the above resolution limited the prize to a single premium of £5,000. One year from the date of the advertisement was allowed for the preparation of the machines, and their transport to the locality where they would be tried, with the proviso that in the event of no invention of sufficient merit being received within the period fixed, the Government would continue to allow machines to be tendered for trial till the end of two years from that date. In 1872 thirty-two machines were tendered, and in the month of August of that year Colonel Hyde was deputed to Saharunpore to examine and report on them; but at the trial only one mill was submitted, which had been designed and patented by Mr. J. Greig, junior, of Edinburgh, and it was pronounced to be unequal to the task proposed for it. In consideration, however, of the novelty of the subject, the trouble undergone by the patentee, and some points of excellence in the design of the mill, Colonel Hyde recommended the grant of Rs. 15,000 as a bonus to the patentee, and this was sanctioned by Government letter No. 16, dated 13th January 1873, to the address of Colonel H. Hyde.

No competitor has since come forward, and the want of a proper mill for the easy and economic working of the fibre still continues to be felt as a great impediment to the full development of this branch of industry. I find from some papers published in the Supplement to the Gazette of India (1870, p. 477) that a machine for the separation of this fibre has been invented by Mr. Roezl which is claimed as a success.

The bazar price of the fibre prepared according to the native method varies from six annas to one rupee the seer.

22. Of the two leguminous plants named in paragraph 9, the first,

Sesbanea aculeata (dhonchia), is of little value as a fibreproducing species. It is common in almost every
part of India. In Bengal it is very extensively cultivated for its sticks, which
are used for setting fire to funeral pyres, as props for valuable creepers like the
garden pea, and as fuel. Its fibre is employed in the manufacture of cordage
of a very inferior quality. The fibre, as usually prepared, is very harsh, but
strong. It appears from experiments made in the Arsenal of Fort William
and by private persons, that when properly treated its quality and strength
improve greatly; and Dr. Royle quotes a report which says—"The dhonchee is
very suitable for ropes, and if it will take in tar, is of considerable value.
It would probably fetch from £30 to £35 a ton, and after being introduced and
known, perhaps £5 more. It was also valued by others at £35 in 1853."
It is never used to adulterate jute.

23. The next species, however, is an important one. Like the preceding, it is common in every part of India, and is highly esteemed as a valuable commercial article. Along with the Hibiscus cannabinus it yields in the North-Western Provinces the most important fibre for cordage and twine, for domestic use,—in fact it there occupies the place of jute in Bengal.

24. Its ordinary native name in Bengal is Sunn; but as that name is also applied to the fibrous product of the hemp plant, cultivators in some districts distinguish it by adding to the word some characteristic epithet or other: thus, the people of Coomarkhali call it Boggy sunn and Phul sunn; those of Cuttack, Chun-pát; those of Jessore, Bhágá sunn; those of Maldah, Bádál sunn; and those of Cachar, Ausá and Sailá. In the North-Western Provinces people call it simply Sunn, and in the Punjab Sunni;

in Madras Wakhoo, Janoomoo, Vakhoonar, Janapam nar, &c.; in Bombay Tag; in Burmah Pan and Paik-hsan. Its botanical characters have been given in the Appendix O. (p. lxxxviii).

25. Frequent mention of the sunn occurs in ancient Sanskrit works under the name of sana and its other synonyms, and everywhere its value as a material for strong ropes and twine is highly extolled. There is a curious passage, however, in the Vishnu Purána, purporting to be a prophecy of the deteriorating character of the Kaliyuga or iron-age, which means that in that ago "the garments of men will be like sani (sunn-cloth, i.e., sack-cloth), tall trees like sami (a species of Acacia), and castes like the sudra."

In the Ain-i-Akbari the plant is described as bearing yellow flowers in the spring, though it now flowers in the rainy and cold seasons, and in speaking of hemp its author says: "One species bears a flower like the cotton shrub, and this is called in Hindustani Sunpát. It makes very soft rope."—

(Gladwin's Ayeen Akbari, Vol. I, page 89).

The first notices of this fibre in European works are due to Rheede (Hortus Malabaricus V, IX, t. 26) and Ironside (Philosophical Transactions of London, LXIV, p. 99), and it is mentioned by Roxburgh in the early volumes of the Transactions of the Society of Arts. Detailed accounts of its culture, of the mode of preparing its fibres, and of the trade connected therewith in Madras, Bombay, and the North-Western Provinces, are given in Balfour's Cyclopædia of of India and Royle's Fibrous Plants of India.

26. To indicate the value of the sunn fibre, I quote the following summary

Its uses. from Major Drury's work:—

"Samples of the sunn fibre were sent to the Great Exhibition, and also to the Madras Exhibition in 1855. On those forwarded to England Mr. Dickson reported that these fibres will at all times command a market (when properly prepared) at £45 to £50 a ton, for twine or common purposes; and when prepared in England with the patent liquid they become so soft, fine and white, as to bear comparison with flax, and to be superior to Russian flax for fine spinning. In the latter state it is valued at £80 a ton. In several parts of India the price varies from Re. 1 to Rs. 2-8 per maund. In Calcutta about Rs. 5 per maund, and the prices both in the latter place and Bombay are gradually increasing. By experiments made on the strength of the fibre, it broke at 407tb in one instance. Large quantities are shipped for the English market. What is known as Jubbulpore hemp is the produce of C. lennuifolia, which, according to Wight, is a mere variety of C. juncea. Royle, however, and other botanists, think that it is a distinct plant; it is said to yield a very strong fibre, but probably not very different from the sunn."—(Royal Jury Reports—Report on Fibres of South India.)

27. It does not appear when this fibre was first sent to Europe as a commercial staple. In the manuscript proceedings of the Calcutta Board of Trade I find that in the years 1791-92 to 1795-96 several small invoices of sunn were sent to England, amounting altogether to 3,005 maunds. These attracted the attention of the English ministry of the time, who urged the Court of Directors to encourage the cultivation of the fibre to as large an extent as practicable. The Court of Directors accordingly sent out a despatch saying:—"Having taken into our serious consideration the subject of obtaining hemp from India, we are exceedingly anxious to promote the wishes of His Majesty's Ministers on that head,

and therefore recommend the same to your particular attention."

It appears from this despatch that some experiments had previously been made in Calcutta with a view to test the value of sunn in the rigging of ships, and a report sent thereon for the information of the Court. Adverting to it the despatch says—"From Captain Barrow's report the ropes made of sunn at Calcutta and used in the running rigging of the Eurl Howe for a trial, appear to have been equal in strength to the best English rope in the ship. You will collect and send us as great a quantity as possible of this article, prepared in the same manner as that in which the above-mentioned ropes were made."

On receipt of this despatch the Government, through the Board of Trade, directed the different commercial residents to advance money to the cultivators, and to get them to prepare the sunn after the European method.

The result of this impetus, however, did not evidently prove satisfactory, for the European method of dressing the fibre was nowhere naturalized, and the indigenous process everywhere held its ground. The fibres sent out during the first few years of this century were so inferior and adulterated, as also so dear, that the annual provision had to be greatly reduced in 1804. The Court of Directors were not satisfied with this course, and the cultivation and exportation had to be largely extended in the year 1808, from which date it has gone on steadily increasing, as is evident from the subjoined table—

YEAR.		Qu	antity in Maunds.	Value.
	•		•	$R_{\mathbf{s}}$
1st June 1808 to 31st May 1809		•••	1,533	12,83 3
1st May 1818 to 30th April 1819	•••		9,420	39,134
1st May 1828 to 30th April 1829		•••	19,478	1,06,759

It must be noted, however, that the returns from which the above table has been compiled include "hemp, flax, and twine," under one head, and some deduction has to be made for what is called flax, which probably was intended to indicate jute, for there is nothing to show that any true flax was ever exported.

28. Of the extent to which sunn is cultivated in Bengal there are no data available: I have failed also to obtain statistics of its cultivation in the North-Western Provinces.

But looking to its consumption for a variety of domestic purposes, for cordage

and twine used in making nets, for the manufacture of canvass, for boat tackle, and for exportation, the quantity produced must be immense. In the Punjab the area devoted to its cultivation was—

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In 1870-71 ... ... ... ... 51,430 acres. ,, 1871-72 ... ... ... ... 47,698 ,, ,, *1872-73 ... ... ... ... 47,781 ,,
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giving an average of 48,969 acres, which, at an average of eight maunds to the

* 1870-71 51,430 acres, acre, would give an annual produce of 391,752 maunds. The figures noted in the margin* have been obtained from Oudh, which, at the rate aforesaid, would give 391,752 maunds for the annual produce of that province. It is to be noted that the fibre of the Mestá pát or Hibiscus* cannabinus is there reckoned under the same category with the sunn, and it is not possible therefore to ascertain exactly the quantity of the fibre of the Crotalarca juncea (the true sunn) produced in that province. The bulk of the produce, however, is said to be derived from the Crotalarca.

The Sanskrit word sana is now used indifferently both for the produce of the Crotalarea juncea and that of the Cannabis sativa; it is impossible, therefore, always to determine what is the plant referred to when the sunn is mentioned The peculiar narcotic qualities, however, of the Cannabis in Sanskrit works. have given it a variety of names, which, when used, leave no doubt as to the nature of the plant indicated. Some of these names are remarkably expressive; thus: 1st, Mátuláni, the wife of the datura apple Mátula, the hemp being somewhat milder than the datura in its narcotic effects. The Arabic word Mutelawwin, meaning unsteady, resembles this name closely in sound. 2nd, Chapalá, "the unsteady," or "the causer of unsteadiness." 3rd, Bhangd, "the wavy," referring to the light, delicate, tremulous character of the plant as it stands in the field. In the Persian language beng means an inebriating drink, and is also applied to the hemp plant, and the question arises as to whether the Sanskrit bhangá is a corruption of the Persian beng, or beng is a corruption of the Sanskrit bhangá. In the former case it would follow that the name as well as the plant came to India from the North-West. 4th, Jayá, "the conquering," or that which overcomes all painful feelings. 5th, Vijayá, "the all-conquering." 6th, Trailokya vijayá, "the conqueror of the three regions of the universe." 7th, Harshini, "the delighter." 8th, Indrabhojana, "the food of Indra," or the ambrosia of the chief of the gods. 9th, Káshmiri, "the plant from Kashmir," indicating its original habitat on the hills. 10th, Bharitá, "the green one," &c.

30. In Europe the plant was imported from Central or Northern Asia at a very early period, as it is mentioned by Herodotus and other ancient authors. In India its earliest mention occurs in the Atharva Veda, and in the well-known medical treatise Susruta a full account is given of its medicinal virtues, which

has been dilated upon by later writers.

Of the history, botanical characters, and the various products and 31. uses of this valuable and extensively cultivated History, botanical character, uses, &c. plant, Dr. Royle, in his Fibrous Plants of India; Major Drury, in his Useful Plants of India; Dr. Balfour, in his Cyclopædia of India; and Sir William O'Shaughnessy, in his Bengal Dispensatory, have given such detailed and elaborate accounts that it would be supererogatory to attempt another description; and these books are so easily The parts accessible that an abstract of their descriptions is scarcely needed. of the plant generally used by man are-first, the leaves, which yield the siddhi or bhang of commerce, and are used in preparing a narcotic drink; second, the florets and seeds, which sell under the name of gánjá, and are smoked for the narcotic effects they produce; third, the resinous exudation from its flower-stalks, called charras, also used in smoking; fourth, the fibre of its bark, called sunn; and, fifth, the stem which is used as fuel.

32. When the fibre of hemp was first used in India does not appear.

The earlier references to the plant have generally been made on account of its narcotic properties, either as a valuable medicine, or as a potent exhilator, but not as a fibre-producer. A passage, however, occurs in the Kausitaki Bráhmana of the Rig Veda, in which the word bhángi, or the "Bhanga-made," is applied to a bedstead, and it suggests the idea that at that early time the fibre was used in making tapes for the tops of charpoys, for it is impossible to employ any other part of the plant in the fabrication of such furniture. This conjecture is the more probable as the word also occurs to indicate nets, in which case the fibre is obviously the material indicated. In some of the Puránas the word bhángaka, or "Bhanga-made," is used to imply a kind of cloth, i.e., hempen cloth, which is described to be very porous, as coarse hempen cloths of former times undoubtedly were. The name and the manufacture still exist among the people of the Himalayan hills, who call the light summer cloth they wear by the name of bhangelá, or the "Bhangá-made."

33. In European works the earliest notice of the hemp fibre occurs in Herodotus, who says "that the Thracians made garments of hemp, which so nearly resemble those made of flax as to require a skilful eye to distinguish them." The next notice occurs in the works of Athaneus, who, on the authority of an ancient writer, speaking of the ships of King Hiero of Syracuse which were superintended by Archimedes, thus notices hempen cords for ropes: "He provided cordage

from Spain, and hemp and pitch from the river Rhone."

According to Potter, hemp, amongst others, was the material with which the Greeks made their cordage. Pliny dwells at length upon the description, culture, and uses of this plant, and says that the Romans manufactured a kind of cord from it, and had a knowledge of the medicinal uses of the root and of the juice of its bark. Tacitus also describes the sails of Roman ships as made of hemp.

34. In the Ain-i-Akbari there occurs the following description of the plant: "Hemp bears yellow flowers during the rains. Hemp grows in clusters like a nosegay. The leaves of the plant resemble those of the chenor tree, and of the bark is made rope."—(Vol. I, p. 89.) In another place it is stated "that large ropes are made of hemp."—(Vol. I, p. 79.)

Where cultivated for its fibre. The fact, the cultivation of the Cannabis for its fibre its fibre its fibre. The fact, the cultivation of the Cannabis for its fibre is limited almost exclusively to

the valleys and the lower hills of the Himalayas, particularly on the Ghurwal and the Kumaon ranges. This is the more remarkable, as the plant is common and wild all over India, takes kindly to almost every kind of soil, and is cultivated largely for its narcotic products. In the provinces under the Lieutenant-Governorship of Bengal, the districts of Rajshahye and Bogra, and the province of Orissa, are the three places which yield the largest supply of siddhi and gánjá, but the people who cultivate the plant there never think of manufacturing any fibre from its bark. Doubtless the great value of the narcotic products makes the cultivators indifferent about the fibre, comparatively of so much less marketable value; still it is worthy of note that they should allow so large a number of plants annually to be destroyed, which by a little labour could be made to yield large supplies of so valuable a fibre.

In the year 1802 an attempt was made to introduce the culture of Government attempt to cultivate it foreign hemps in Bengal. Seeds were more than once sent out from England, but none of them Recourse was then had to seeds from the hills beyond Almorah, germinated. and the manufacture was carried on under the superintendence of European hemp-dressers at Rishra, and in Rohilkund, Casseepore, Maldah, Goruckpore, Mhow, and Azimgurh. In 1804 a farm was also established in Bareilly, and placed under the management of an experienced European officer. But the results everywhere were unsatisfactory, and on the 13th May 1808 the Calcutta Board of Trade abandoned the farms, saying: "With respect to hemp, the Board, judging from the experience of past years, have no expectations that the provision of that article in these provinces can ever become an object of national importance. The experiments which they have made at different places to introduce the cultivation of hemp have hitherto been attended with little success, whilst the small produce obtained has been extravagantly dear. The Board are now prosecuting further experiments in new districts. To the importation of hemp from the northern hills every encouragement has been, and will continue to be, given, and the supply from that quarter may be expected to increase."

An inquiry was instituted about the subject in the year 1871, and in reply the Board of Revenue intimated to Government that the gánjá-producing hemp was not cultivated for its fibre in any part of Bengal, except in small quantities in Singbhoom and in isolated patches in Assam.

- 37. In the Punjab and Oudh the hemp plant grows wild, and is also collivation in the N.-W. Provinces, cultivated to some extent for its narcotic products, Bombay and Madras. but never for its fibre. In Kumaon it is grown largely for its fibre; but even there its cultivation "is now in no further advanced state than it was 30 years ago." "At that time," writes the Commissioner, "it was proved to be superior to Russian hemp, but the spasmodic attempts made to stimulate its production ceased long ago,—not because better hemp than Russian could not be produced in Kumaon at remunerative prices, but because English merchants and capitalists, I presume, were not sufficiently informed upon the subject; or if they were, they must have preferred getting their supplies landed at their doors from other sources, even if the product was inferior, to entering into the trouble of an alliance with the Páhárce cultivator." In Bombay and Madras it is also grown, but not for its fibre.
- 38. Before proceeding to report on jute, I must refer to one other plant which deserves to be noticed in this place: it is the linseed or flax plant. In Arrian's Periplus of the Erythrean Sea, mention is made of a kind of fine cloth called λόσια (lentia), which from its name was evidently the product of the linseed plant, Linum usitatissimum. This was the kshauma (linen) of the Sanskrit writers, a cloth made of bark, of which frequent mention occurs in the Rámáyana and the Mahábhárata. This cloth used to be of very different qualities, sometimes fine and sometimes very coarse. The lentia above referred to was of a superior quality, and mistaken in Europe for fine muslin. In ancient Sanskrit it is often named as fit for vests for princesses, and modern expounders have been led to suppose that it was a silken cloth. Indeed in many medical dictionaries the word kshauma occurs as a

synonym for silk. Kshumá,* however, of which it is a derivative, is explained in Wilson's Sanskrit Dictionary, in accordance with ancient authorities, as the linseed plant, and this leaves no doubt as to the nature of the kshauma cloth. Among the many important synonyms of the word kshumá are Umá, Haimavati, Atasi (whence Bengal tisi), and Masrina (smooth, unctuous, whence Bengali masiná), all implying a plant. The words kshauma (kshumá-made), Auma (Umámade), and Atasa (Atasi-made), occur in various Sanskrit works of different ages. Manu directs mantles of woven kshumá to be worn by theological students of the military class. Out of the several significations of kshauma given by lexicographers, one is Atasi-vastrum (flaxen cloth), another Patta-vastrum (pát-madecloth, the word being derived from the root kshu, to rustle), and a third Sanavastram (sunn-cloth, one of the meanings of kshumá being Sana, the Crot. juncea). So recently as 300 years ago Kavi Kankana, in the Bengali Chandi, described a female punished by being obliged to dress in kshauma cloth and to tend In this instance the cloth obviously was a coarse or sack cloth. the Puránas references to the kshauma cloth are frequent, but not in such a way as to indicate its nature and character. In the Ain-i-Akbari a linen cap is described as part of the dress of a Brahmachari (Vol. II, p. 483). Anyhow it abundantly evident that, as in other parts of the world, so in India, the true flax was known and manufactured from very early times, but that within the last two hundred years it has entirely lost its ground; and in Bengal, in the present day, a man would be laughed at who would say to the cultivators that the stalks of their well-known tisi is rich in fibre, and would by proper management yield a valuable product. Nor is this a matter for wonder, seeing that the linseed plant has so degenerated in Bengal that it seldom exceeds a cubit in height, and fibres prepared from it cannot but be of little value. Whether this degeneracy in the size of the plant is due to any deterioration in the soil and climate, or to defects in the mode of cultivation, I cannot ascertain. The practice in Bengal is to sow the seeds of the plant broadcast in very imperfectly ploughed fields, and so wide apart as to allow the plants to became bushy and In the North-Western Provinces the seeds are sown along with gram, safflower, wheat, &c., and the result becomes the same. In Oudh and Bombay it is likewise cultivated for its seeds, but never for its fibre.

39. In Bengal the Calcutta Board of Trade tried some experiments to improve the culture of flax in the early part of this century. Six Arabs, well experienced in the method of flax manufacture as practised in Egypt, were brought over from Bussorah. The place selected for experiment was a large field in the neighbourhood of Cassipoor, on the Himalaya; but it failed completely, and the Arab dressers had to be sent back at the close of 1807.

A successful series of experiments was tried by the Belfast Flax Company at Sealkote with foreign seeds sown in ridges. The result was highly satisfactory; the plants attained a good height, were rich in strong fibre, and altogether very superior to the Indian plant as ordinarily reared. A serious difficulty, however, stood in the way of the experimentalists; they could not grow the plant in sufficient number near their factory to make it remunerative to the zemindars. When grown at a distance in small quantities, the cost and delay involved in carrying the raw material to Sealkote were out of proportion to the sale proceeds. The plants also did not satisfy the cultivators, as the seeds produced under the European method of cultivation were not near so rich in oil as the ordinary country seeds. The experiment had therefore eventually to be given up.

In Madras "tlax has been tried in several parts of the Presidency, both by Europeans and natives, and every inducement has been offered to the latter to cultivate it for seed by the temptation of high prices;" but it has not succeeded there as a fibre-yielding plant.

40. The tisi of Bengal sells at a high price for its oil, and the ryots would be shy of adopting any method of cultivation which would impair the yield of seed per acre, or the oleaginous component of the seed, unless it can be shown that the value

The word has a strong resemblance to the Chinese Chu-má, which is applied to the Urtic tendcissima as well as to the true flax. It suggests an important inquiry as to the original habitat of the plant, which is believed by European botanists to be of Eastern origin.

of the fibre would more than compensate the loss caused by the reduced yield of seed and its deterioration in quality, or, which would be the same thing, such a method of cultivation may be adopted as would prevent the deterioration of the seed, and at the same time improve the growth of the plant so as to make it fit for the manufacture of flax.

- 41. The last two plants named in the list given in paragraph 9 have to be Corchorus olitorius.

 Their uses as potherbs in Greece, &c.

 They belong to the order them to be the same. They belong to the order them to be the same. They belong to the compound term was orignally assigned to pimpernel or chickweed, because it was thought to purge the eyes of rheum. This chickweed is supposed to have been the Corchorus olitorius, or the bristly-leaved Corchorus. The Greeks used it as a potherb. It is still cultivated in the neighbourhood of Aleppo, and is described by travellers as eaten as a potherb in Egypt and Arabia, as well as in Palestine. Rawolf saw the Jews about Aleppo using its leaves as a potherb, whence the old name of the plant (Olus judaicum, which has been rendered into Mauce de Juif in French, and Jew's mallow in English. It is supposed to be identical with the plant referred to in Job, chapter xxx, verse 4, under the name of Maluch (This).
- 42. Bochart is of opinion "that it means that particular shrub which the Greeks called ἄλιμος, and the Romans Halimus, first, because the Syrians still call it ἄλιμος; second, the Hebrew and ἄλιμος refer to the salt taste which the Arab writers attributed to this plant; third, because it is described to be the food of the wretched in Job, as cropped upon the shrub, which exactly agrees with what the Arab writers say of Maluch or Halimus, viz. that "they ate the tops of it." (Hebrew Lexicon).
- 43. Eadie, in his Biblical Cyclopædia, referring to the passage in Job where the word mallows occurs, says "that it is supposed to be the kind of bramble without thorns, the young leaves of which, resembling lettuce, are gathered and boiled by the poor as food." At Bagdad quantities of the vegetable are hawked about, while those who carry it cry "Malochia, Malochia," which differs little from the Hebrew word. Saline plants are found in the deserts of Arabia, and some are of opinion this is a general name for the class; others think that the real plant intended is a species of salt-wort, to which opinion the Greek version of the word gives some countenance.
- 44. Brown, in his Biblical Dictionary, speaking of the mallows, says: "there are about fifty or sixty kinds, and they are very useful in medicine. The leaves are useful in softening fomentations and cataplasms. A decoction of the root is a good drink in pleurisis, pneumonia, general inflammation of the kidneys, strangury, and all kinds of suppression of urine. Plutarch and Horace represent mallows as eaten by the poor, but perhaps the Maluchi are some kind of bramble whose tops and leaves are eaten by the poor people, and are still called Maluchia by the Moors." It is worthy of note that in the Appendix to Arrian's Periplus of the Erythrian Sea, containing a digest of the exports and imports of Alexandria, a kind of Indian cloth is named Μολόχωνα (Molochina), which was of the colour of mallows, but whether the name was derived from the potherb Malochia, i.e., a cloth made of pát fibre, or from any Greek or Indian word, does not appear. The similitude of the name with Malochia would support the first inference. Paulino, however, explains the word to mean chintz: "Tele finissime depintie rechamente."—(Vol. II, p. 58).
- 45. In India several species of this family of plants, including the two under notice, are also extensively used as potherb in India.

 1. The common name in Bengal for the plant when used as a potherb is Nálitá (affect), a corruption of the Sanskrit Nádika (affect), the different varieties or species being indicated by appropriate

prefixes, such as ghi-nálitá, tit-nálitá, bil-nálitá, &c. These words have also very frequently the suffix sáka, meaning a green, or potherb, to indicate the use made of the plants to which they are applied. Some of the plants yield leaves which are excessively bitter; others slightly so. The former, called tikta nálitá,* according to the Rájavallabha, a modern medical treatise, is a specific against red eruptions, worms, and leprosy. The latter, madhura, cures cold, paralysis, phlegm, and wind; both of them are esteemed as good tonics. The middle and higher classes of the people take them, boiled with other vegetables in the form of soups, as stomachics or appetizers; the lower classes use them as articles of food.

When referred to as fibre-producers, these plants, however, are rarely called by any of the several names above alluded to. Vernacular names of the plants when referred to as fibre-producers. but by the generic term pát, obviously the verna-Pát: its derivation. cular form of the Sanskrit patta. The last word is derived from the root pat, "to surround," and is a very appropriate name for the fibres which surround the stem of the plant. But the word has been used to indicate cloth generally, as also turbans, bandages, ligature, and fillets, which are all intended to surround parts of the human body. From cloth generally to silk in particular, the transition was easy, and in some mediæval dictionaries patta is explained to be the name of woven silk. In that case, however, the root of the word was probably pat, "to shine;" but that would be alike applicable to the glossy fibres of silk and to pát. That the word was likewise used to indicate a plant is evident from the writings of commentators, as also from the Sabdamálá, a lexicon of the middle ages, on the authority of which Professor Wilson explains the word in the first edition of his Sanskrit Dictionary as "a plant (Corchorus olitorius) from the fibres of the bark of which, called jute, a coarse sackcloth and cordage are prepared." This explanation has been almost generally accepted by subsequent lexicographers. The word occurs in the Mohábhárata for a fibre other than silk. In enumerating the various presents which the allies and tributaries of Yudhisthira brought to him on the occasion of his great coronation festival, the Rájasuya, the poet, in one verse, mentions certain articles which he calls "patta-produced" (patta-jam) and "insect-produced" (kita-jam). Here the "insect-produced" article was unquestionably silk, and the other, therefore, may be, without any violent presumption, assumed to be pát—at any rate something else than silken cloth. It should be noticed, however, that Dr. Royle, in his Productive Resources of India (page 116), cites the translation of the passage in question by one Terooner Candoo Mooteah, who reads the words patta-jam as patta-kitán, "the patta insect," which, if correct, would upset the above inference. The passage, however, was shown by Dr. Royle to Professor Wilson, who examined the Calcutta edition of the text, and a good manuscript in the India House Library, but failed to find the new reading; and as long as Mr. Mooteah's version is not borne out by the concurrent testimony of a number of authentic manuscripts, it may be set aside as of little import.

the word ansu, "bright" or "lustrous," and stands close by the term kausheya, "cocoon-made," showing again that it was other than silk. And the late Dr. Goldstücker, in his edition of Wilson's Sanskrit Dictionary, very properly explained it to mean "a peculiar kind of fine cloth made of bark." It may be said that Pát is now-a-days ordinarily employed in the manufacture of sackcloth, canvas, and other coarse fabrics; and as the epithet cannot with propriety be applied togine cloth, the "lustrous patta" (ansu-patta) of Manu must mean something else. This is possible; but the fact of the word patta having been for the last eight hundred years, since the date of the Sabdamálá, associated with the Corchorus, would justify the assumption that even before that time it indicated the same plant. The Rajatarangini uses the word patta-vaktra for the nose-bag in which horses are fed with corn, and in which case the coarse canvas made of pát is all

Dr. Royle supposes the bitter kind to be a variety of the Corchorus olitorius, but Dr. Roxburgh classes it as different species under the name of Corchorus fuscus, and Dr. Lamarck under that of C. ac stangulus.

but certainly indicated. Among the synonyms of patta there are also words which clearly imply a plant, and that the Corchorus. These are Kakkhata patraka, or "the rough-leaved"; Rája sana, "the noble or big sunn," the plant being larger than the Crotalarea juncea; Sani, or "the sunn-like." The last two terms would suggest the inference that the Crotalarea was first known to the people, and that pát came to be familiar subsequently, and was accepted as a variety of the former. This is strengthened by the fact that Sana occurs in very ancient Sanskrit works, and the words Chimi and Chimika (probably a misspelling of China) also applied to the plant (pát), indicate its importation from China, a country where it is well known to grow wild, and also to be cultivated for the sake of its fibre. Dr. Roxburgh once obtained some seed from Canton of what was called "Chinese hemp," and produced a fine crop of it in the Honorable Company's Botanical Garden, but it turned out to be nothing but the Corchorus. It should be borne in mind, however, that objects brought from beyond the Himalaya frequently got the name of China in ancient Sanskrit writings, and the epithet Káshmiri or "Kashmirian" applied to the pát suggests the idea of its being a Himalayan product.

48. In current Bengali pát invariably means the fibre so called, as also the plant or plants which produce it, never silk; but Meaning of pat in Bengali. when joined with a word implying cloth, as pater kápad, and in the Sanskrit form patta vastra, silken cloth is generally understood, and not linen. This use of the word for objects so very dissimilar has led to much confusion, and it is often very difficult to decide when an Indian author refers to the plant, and when to silk or cloth. The confusion, however, in this case is probably due partly to the same cause which has led the kshauma cloth, noticed in paragraph 38, to be mistaken for silk, and that is the similarity of the flax and the pat in colour, gloss, feel, and appearance with silk, and partly to the word patta being equivalent both to cloth of any kind as well as to the plant which produces the pát of commerce. It may be also added that the meaning "silk" assigned to patta is due to commentators and lexicographers of the last six or seven hundred years, whose knowledge of the materials used in the manufactures of ancient clothing was necessarily limited, and who did in many instances confound specific with generic names. The two unmistakable and certain names for silk are kausheya, "cocoon-made," and kitajam, "insectborn," and of the two others frequently accepted to mean it, namely, kshauma and patta, the former has been indubitably identified with flax, the fibre of the Linum usititassimum, and the latter, for the reasons aforesaid, may very reasonably be taken for pát.

49. One of the Bengali names of the plant, according to Dr. Birdwood,

Mr. Piddington, and Dr. Baltour, is bhunghee or

bhunghee pát, and according to Major Drury,

blunjee pát; but these terms are not in use amongst the Bengalis. The first

word bhungee, derived from the Sanscrit bhangá (Hindi, bhang, Cannabis
sativa), has a curious resemblance to gunja or gania, a name applied to the

plant by Rumphius in his Herbarium Amboinense.

50. The most familiar Bengali name for the plant, but especially for the Eastern Bengal name, koshta; its fibre of both the species as used in native comderivation.

merce, is, next to pát, koshtá. It is in general use in Eastern Bengal. The word is derived from the Sanskrit kosha, "a sheath," the fibres forming a sheath for the stem of the plant—"the sheathed one."

51. The common Hindi name of the plant is patuá or putwá sunn. Hiddi, Madrasi, and Burmese names Major Drury calls it Sinjinjanascha, which eviore the plant. dently is a Madrasi name. It is called Phetwoon in Burma, where, specially about Rangoon, it grows wild. It is believed, however, that the species Corchorus fuscus, or the titá variety of the C. capsularis, grows in that country, affording a strong grey fibre (Royle, Balfour, and Roxburgh). Royle and Balfour say that it is called isbund in the North-Western Provinces of India; but Dr. Stewart, in his Punjab Plants, doubtfully describes the seeds of the C. trilocularis (Linn.) or C. acutangularis (Lam.) as sold in the bazar under this name, they being considered officinal and given in recumatism. In the 'Ulfaz Udwiyeh, or the Materia Medica in the late.

the 'Arabian, Persian, and Hindevy languages' by Noured-deen Mahomed Abdulla Sherazi, isbund is, however, the name given to a species of mustard seed.

The common names used in Orissa for both the jute-yielding species of Corchorus are Kowria and Nálitá, other names Uriva names of the plants. being Naskarkáni, Kostra, Kangra, Kanta, Tita, Beral, and Hanuman; but whether they are mere local names of these plants or of their different varieties, or of other plants confounded with the juteproducing species, it is uncertain.

53. Dr. Royle calls it Cooch murda paut, but gives no further description of it than supposing it to be a species of Corchorus. Rungpore name of the plants. He also says that some jute sent to the Exhibition of 1851, from Rungpore, was distinguished by the names of Suffed (white) Hemunty* pát, Lal (red) Hemunty Pát, and Lol Petre † pát.

54. Turning now from the plant to its fibre, the most popular name

of it in Bengal and the North-Western Provinces Vernacular names of the fibre of the The word is also more or less common in is *pát*. other parts of India, showing clearly that, whatever confusion Sanskrit lexicographers and commentators may have caused in the meaning of the Sanskrit patta by their diverse interpretations, the true import of the base has been very carefully preserved in its vernacular form. In Eastern Bengal it has, however, given way to kohstá (vide para. 50), which is the prevailing name among agriculturists and dealers. It should be noted, however, that even there the word pát is likewise current, though confined among the general public unconnected with the cultivation of the plant and the manufacture of its fibre. Sani, Rájasana, and other terms, already cited above as names of the plant, are also applied to the fibre; but they are purely local, and confined to very small areas.

The following list comprises all the local vernacular names current in the

different districts under the Lieutenant-Governorship of Bengal:—

Burdwan	·· {Pat. Lal pat.	Nuddee Koshta.
Bancoorah	Sada pat.	Nuddea Desi koshta.
Beerbhoom	(Nalita.	Megnal koshta.
Declandom	·· { Botocari.	Pat.
	(Naskar kani.	Koshta.
	Koshta.	Megnal.
	Jhut.	Sada pat.
Midnapore	Kanta.	Jessore \ Desi pat.
	Beral.	Bagi pat.
	Tita.	Pat madhai.
	Khetra.	Amonia borou pat.
	Hanuman.	Deebri pat.
	$\left(egin{array}{c} \mathbf{Koshta.} \\ \mathbf{Pat.} \end{array}\right)$	Koshta.
\mathbf{H} ooghl \mathbf{y}	7 _ · ·	Meghlal pat.
•	Desce pat.	Tita pat. Moorshedabad < Hintaj pat.
	Luckhipore pat. Chand pat.	
	Lal bun pat.	Dholi pat. Peta pat.
Howrah	Teeta pat.	Motee.
	Sada pat.	Koshta.
••	(Desi pat.	Lelia koshta.
	Teeta pat.	Jate koshta.
	Bangilaul pat.	Marooa koshta.
	Ghrita kanchan pat.	Bow moochkee koshta.
	Maisal pat.	Ramna koshta.
04 D	Sanchinana nat	Dinagepore \ Amna koshta.
24-Pergunnahs	Sada dhakai pat.	Amuneea koshta.
	Luckipore dholi pat.	Parbuttea koshta.
	Rangri pat.	Patmadhai koshta.
	Luckhipore bagi pat.	Chiral naricha.
	Bangi pat.	Gopal bhog.
	Amandholi pat.	Kala.

Haimantya, "wintery," of Sanskrit writers.
 Patra, leaf, Sanskrit.

Rajshahye		C Municai nataca	•	437 11
Rajshahye	Maldah	Muniasi patooa. Nalta patooa	Sylhot	SNalia.
Pat. Fat. Koshta. Patmadhai. Patmadhai. Parboti pat. Amoni pat. Dhola pat. Dhola pat. Patnadhai. Patnadhai. Dhola pat. Dhola pat. Dhola pat. Patnadhai. Patnadi pat. Pa	TO 1 1	Koshta.	Symet	
Rungpore	Kajshanye		Cachar	
Rungpore Patmadhai. Jate pat. Parboti pat. Amoni pat. Dhola pat. Desi pat. Numlia pat. Patnai pat. Patnai pat. Patnai pat. Tipperah Patnai pat. Patnai koshta. Patn				
Rungpore		Koshta.		
Rungpore			Noakhally	
Parboti pat. Amoni pat. Dhola pat. Joli pat. Ausha pat. Desi pat. Numlia pat. Patnai patnai pat. Patnai pat. Patnai pat. Patnai pat. Patnai pat. Patnai pat. Patnai pat. Patnai pat. Patnai pat. Patnai pat. Patnai patnai pat. Patnai patnai pat. Patnai patnai pat. Patnai patnai pat. Patnai patnai pat. Patnai patnai pat. Patnai patnai pat. Patnai patnai pat. Patnai patnai pat. Patnai patnai pat. Patnai patnai patnai pat. Patnai patnai patnai pat. Patnai pa	Rungpore			
Dhola pat. Joli pat. Ausha pat. Desi pat. Numlia pat. Patnai pat. Tosha. Amonia pat. Meglal pat. Koch murdun pat. Patna Koch murdun pat. Patna Koch murdun pat. Patna Koch murdun pat. Patna Koch murdun pat. Patna Koch murdun pat. Patna Koch murdun pat. Patna Koch murdun pat. Patna Koch murdun pat. Patna Koch murdun pat. Patna Koch murdun pat. Robita Patna Morewah pat. Sada pat. Laul pat. Emilah. Cheera marrah. Cheera marrah. Cheera marrah. Koshta. Purneah Mudhoor nalita. Pooree Mudhoor nalita. Pooree Mudhoor nalita. Pooree Mudhoor nalita. Pooree Mudhoor nalita. Singbhoom Kanora do. Chanchi pat. Kanora do. Chanchi do. Chan				
Dhola pat. Joli pat. Ausha pat. Desi pat. Numlia pat. Patnai pat. Tripperah Sat. Dhules sepori. Parbatya. Poorbie. Madhurie. Desi. Madhurie. Desi. Madhurie. Desi. Patna. Pa		Amoni pat.	Chittagong	Narish.
Bogra		L'Dhola pat.		
Bogra			۱	
Bogra		Ausna pat.	Tipperah	
Bogra				Daules seport.
Tosha. Amonia pat. Meglal pat. Koch murdun pat. Pubna Nalita Nalita Nalita Pubna Nalita Nalita Nalita Pubna Nalita Nalita Pubna Nalita Nalita Pubna Nalita Nalita Nalita Pubna Nalita Nalita Pooree Nalita Nalita Pooree Nalita Nalita Nalita Nalita Nalita Chanchi pat Kanora do Chanchi do Cheta do Nowgong Nalea Nalea Nowgong Nalea Nowgong Nalea Nowgong Nalea Nowgong Nalea Nowgong Nalea Nalea Nowgong Nalea Nalea Nowgong Nalea Nowgong Nalea Nalea Nalea Nowgong Nalea	Bogra	Patnai nat	•	Crarbatya.
Amonia pat. Meglal pat. Koch murdun pat. Pat. Satnala koshta. Bura koshta. Chhota koshta. Pat. Koshta. Bura koshta. Chhota koshta. Pat. Koshta. Bura koshta. Pat. Koshta. Bura koshta. Purneah Purneah Puneah Puneah Puneah Puneah Puneah Puneah Pat. Koshta. Bhownachuk. Dhumua. Meglal. Pat. Koshta. Pat. Koshta. Pat. Cottack Pat. Koshta. Pat. Pat. Koshta. Pat. Pat. Pat. Koshta. Pat. Pat. Pat. Roshta. Pooree Jhote. Cuttack Pooree Jhote. Cuttack Tributary Betree pat. Pat. Roshta. Pat. Pat. Roshta. Pat. Pooree Jhote. Cuttack Tributary Mohal Nalita. Chanchi do. Teeta do. Roshta. Pat. Pat. Roshta. Pat. Roshta. Pat. Pat. Roshta. Pat. Pooree Jhote. Cuttack Tributary Mohal Nalita. Chanchi do. Teeta do. Roshta. Pat. Pat. Pat. Roshta. Pat. Roshta. Pat. Pooree Jhote. Cuttack Tributary Mohal Nalita. Chanchi do. Teeta do. Roshta. Pat. Pat. Pat. Pat. Pat. Pat. Pat. P		Tosha.	Tirhoot	
Pubna			1111000	
Pubna			Bhaugulpore	
Pubna		(Koch murdun pat.	8-1	
Bura koshta. Chhota koshta. Chhota koshta. Pat. Koshta. Merwah pat. Sada pat. Laul pat. Emliah. Cheera marrah. Julpigori Koshta. Fat. Koshta. Fat. Koshta. Fat. Koshta. Fat. Koshta. Pooree Balasore Cuttack Chanchi pat. Singbhoom Chanchi do. Teeta do. Maunbhoom Teeta do. Koshta. Balain pat. Balain pat. Balain pat. Bagi pat. Dosi pat. Koshta. Balasore Cuttack Tributary Mehal Nalita. Chanchi do. Teeta do. Koshta. Bollan pat. Bagi pat. Desi pat. Koshta. Bagi pat. Dosi pat. Koshta. Bagi pat. Chanchi do. Teeta do. Koshta. Bagi pat. Dosi pat. Koshta. Bagi pat. Chenchi pat. Koshta. Pata. Kamroop Shukta pata. Teeta pata. Jate pata. Jate pata. Jate pata. Jate pata. Jate pata. Jate pata. Jate pata. Jate pata. Jate pata. Lohokoree. Teota mara. Bengal mara Meetha mara. Meetha mara. Meetha mara. Meetha mara. Meetha mara. Meetha mara. Lohkori do. Chat do.		Pat.		
Bura koshta. Chhota koshta. Pat. Koshta. Pat. Koshta. Merwah pat. Sada pat. Laul pat. Emliah. Cheera marrah. Cheera marrah. Julpigori Koshta. Pat. Koshta. Pat. Koshta. Pat. Koshta. Pooree Koshta. Pat. Pat. Roshta. Pooree Valita. Valit	Pubna			
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The Malays call the plant Rami-tsjina or Chinese hemp, and the Chinese, Oi-moa; this latter name has a very strong resemblance to the Sanskrit Au-ma, signifying flaxen.

signifying flaxen.

55. None of these names, however, has been adopted by foreigners to Introduction of the term jute in the indicate the staple. This is the more remarkable as European nations interested themselves very

largely in the manufacture of canvas and cordage with Indian fibres so early as the middle of the seventeenth century. Soon after the embassy of Sir Thomas Roe, the East India Company was permitted by the Mogul Government to establish a factory at Pipley, twenty-two miles from Balasore, it having obtained, in 1634, the privilege of a free resort to the port. The factories at the time at that place and in the neighbouring towns of Soro, Bhudruk, Jajpore, and Huripore, carried on extensive ropeworks and manufacture of fibre fabrics. The Dutch, in those days, also took a prominent part in these works, and had their Lynbaan, or ropeyard, in almost every station in which they traded. Francis Valentyn, in his Keurlyke Beschryving van Choromandel, Pegu, Arrakan, Bengala, Mocha, &c., published at Amsterdam in 1726, notices most of these stations in detail. With reference to Palicol below Ganjam, he says: "There was here an important ropeyard and other works, at the head of which was a Dutch foreman. They manufactured there all kinds of ropeworks, and also canvas of hemp, to as great an extent as the East Company wanted them for their vessels. The hemp necessary for them came from the districts of Eloer, Rajmandri, which is about fifteen hours' distance from Palicol." The hemp here referred to was certainly not the fibre of the Cannabis sativa, but that of the Corchorus olitorius, or of the Crotalarea juncea; but the word jute does not occur with reference to it. Of Hariapoor (Huripore) he says: "This place brought sunns of that name; Cassari, much Tuffatsjelas, &c., &c., which were manufactured there." Again, "Bollua is a district where you find much sunn, and Siongel a locality where the Siongelian sunns are manufactured." Among the exports of Batavia and of Netherlands India, are generally mentioned Groot zeyldock, large canvas from 35 to 36 ells in length, and Zeil-kleeden or "sack-cloth 40th in a pack," but nothing of jute or jute-made canvas or gunny-He likewise states that the English East India Company had a great rope-yard at Hooghly; and in the selections from the unpublished Records of Government, Vol. I, Proceedings, 5th May 1766, there is mention made of a dispute with the Netherlands Company about a ropework at Balasore; but the word jute does not occur in any part of it. The Hooghly ropery was established about the beginning of the last century; and Valentyn, in 1726, describes it as situated behind the Resident's house, and says that "for the Company's vessels a great quantity of roping was made there, which was fit for hawsers for anchors;" In the earlier travels in India, such as but here also he says nothing of jute. those of Bernier, Fayrer, and Sir Thomas Roe, the word jute is likewise Indeed the earliest record to which I can trace it is the "Commercial Index to the Proceedings, of the late Board of Trade, for 1796," in which mention is made of jute having been sent to the Hon'ble Court of Directors on more than one occasion. In the year previous, Dr. Roxburgh had sent a bale of fibre prepared by himself from the bark of the produce of Corchorus capsularis, which he described as "the jute of the natives." Mention of this, however, occurs in the Proceedings for 1803. Two years previous to Dr. Roxburgh's invoice, i.e. in 1793, the Company's officers had sent to England 100 tons of fibre under the name of pát, not jute; and in acknowledging the invoice the Court of Directors enclosed a report of the Committee of Warehouses, dated 9th October 1793, in which it is said:—"Of pát your Committee are happy to be enabled to speak more favorably. Some of the most eminent dealers declare that it is not hemp, but a species of flax superior in quality to any known in the trade. One thousand tons of which would readily go off annually at from £40 to £60 per ton." In the MS. Commercial Index for 1796, the word jute occurs frequently, but it then seems not to have taken root, as in a despatch dated the 4th December 1800 the Secret Committee of the Court of Directors talk of the fibre as p at, and say "the article of p at is grown much more extensively by the natives than sunn, and may be procured in large quantities. The Board conceive that, if prepared in the European method, it ought to answer for many purposes for which hemp is now used in Europe." In 1801 the Commercial Residents of Chittagong, Maldah, and Rungpore, when writing about the prospects of the cultivation of sunn, make mention of pát, not jute. Soon after that time the word jute, however, seems to have entirely superseded all other names for the fibre in Government correspondence, and it may therefore be safely assumed that the word came into use during the last decade of the eighteenth century.

- Valentyn's work, down to 1726 the Dutch never used it in their factories on the seaboard of Orissa. Did they use it after that time? They engaged themselves largely in roperies and canvas manufactures, and it would not be at all improbable if it be supposed that they used a Dutch word to indicate the fibre. In the Dutch language zijde is silk, zacht silky, zout salt (mallows having been regarded as saltworts), and zoot-je a small bag or parcel, and any of these words could be very appropriately employed to indicate the glossy, silky fibre of the Corchorus; but there is no proof to show that the Dutch factors of Balasore did really use any of these words for pát.
- of the marsh mallows, Corehorus olitorius. But there is nothing but the similarity of the preceding three words. The relation in their meanings is as far fetched as possible, and evidence altogether fails to show that English factors had, at the close of the last century, any reason to hunt in old chemical works for the name of an article which, by its native name of pát, was well known, and that at a time when they were freely importing Indian terms into English.
- 58. Dr. Wilson, in his Glossary of Indian Terms, sets down jute as a Bengali Opinions of Dr. Wilson and others. Word, spelling it with a soft t and long is (\$\sigma\$); and Dr. Royle, in his Fibrous Plants of India (p. 243), supposes it to be derived from the Bengali chat or chati (\$\sigma\$ chat) " to cover." Roxburgh, in his Flora India; Balfour, in his Cyclopædia of India; and Birdwood, in his Cutalogue of the Economic Products of the Presidency of Bombay, have also accepted it as a Bengali word; but, singularly enough, the Bengalis generally do not recognise it as belonging to their vocabulary, and some of them regard it to have sprung up in the language of commerce, and introduced into it by British or other foreign merchants. The various Anglo-Oriental diglots which have been published from the middle of the last century down to the present period, give evidence of this uncertainty in their utter omission of the word from their contents. Robinson, in his Law and other Terms, published in 1860, has inserted the word as an English vocable, explaining it as \$\frac{1}{5} \sqrt{1} \sqr
- It has been suggested by a local officer, that as the Bengali word pát, meaning silk, has been applied to the Corchorus, Opinion of a local officer. So jute might have originated from jhut-jhutá, Hindi jhutthá, a corruption of the Sanskrit uchchhishta "ort," and in common use among the Europeans in silk factories in the districts of Burdwan, Nuddea, Rajshahye, Moorshedabad and Pubna, for "the refuse silk in filatures where the thread is manufactured." This is, however, a mere conjecture, based only on a faint resemblance in the sounds of the two words. The word jhutá is used to indicate the first few threads of broken silk which come out before the right clue of a cocoon when boiling is caught. They are jhutá or "false" in contradistinction to the real or true clues of the cocoon fibre, and have no relation to offal, ort, or the debris left on a plate after a person has finished his meal, to which the word uchchhishta is applied. In commerce the jhuta of silk factories sells under the name of chasam. The fibre of the Corchorus has nothing whatever to do with any ort or offal; it is no refuse of any kind; nor is it allied with any falsehood, or the result of any first abortive attempt,

^{*} Crabb's Universal Technological Dictionary.

[†] Macbean's Dictionary of Ancient Geography.

and therefore it would be absurd to suppose that people would apply to it the term jhutá, whether it be in the sense of falsehood or offal.

The fact that Dr. Roxburgh first used the word jute to indicate pát, and the way in which he used it, "the jute of the Derivation of jute. natives," suggest the idea that he got it from the people about him in the Hon'ble Company's Botanical Garden at Sibpur. These people were the gardeners, and most of them were Uriyas, for the people of Orissa contribute at least three-fourths of the gardeners in and about Calcutta. It has been already shown in the list annexed to paragraph 54 that the words jhont and jhot are the vernacular names of jute in the Cuttack, Puri, Balasore, and Midnapore districts, and it has been ascertained that they are the prevailing terms in all Orissa for pát,—in Balasore the word jhot is the only name by which the jute is known,—and the inference, therefore, is that Dr. Roxbugh got the word from his Uriya mállies, and Europeans have since followed him in using the word, which, on his authority, they accepted to be the correct vernacular name for the staple. If it can be shown that the word had got currency before the time of Dr. Roxburgh, still the fact of the extensive roperies and canvas manufactories of the English factories on the sea-board of Orissa would point to the vernacular of that country as the source of the word. The words jhont, jhot, and jhat, are all derived from the Sanskrit root jhat, "to be entangled:" whence the Hindi jhont and jhoti, and the Bengali jhunt and jhunti, meaning a tuft of hair, and particularly the large tuft on the crown of the head which all good Hindus are required to keep as a mark of their nationality. The root also implies "to become bushy," and the words jhat, jhati, and jhad, derived from it, mean "a thicket," "a bush," "a shrub," and they are accordingly used to name particular plants, such as jhinti—Barleria cristata and Barlerea dichotoma. One form of the root jhat is jat, and from it are produced juta and juta, both meaning "matted hair;" sometimes these two words are used together, and sometimes separately, to indicate the "matted hair" of Sannyasis. Separately they are used to imply any thing tangled, as also uncarded fibre, like tow, &c. The two words are also separately applied to different plants or produce thereof; thus, jata, jatámánsi and jatála—Valeriana jatamansi; jati—Ficus venosa; tála jatá, the spath of the palm tree. Borassus flabelliformis. The Sanskrit jula, when used as a Bengali word, is pronounced jut, which in sound and sense would indicate jute fibre, and may be taken to be the source of the English term. Since, however, the people of Bengal do not use the Sanskrit word to imply the fibre of the Corchorus, I am induced to believe that it has been derived directly from the Uriyá jhot, which itself is a vernacular form of the Sanskrit jhat. The only exception that can be taken to this opinion is, why should Dr. Roxburgh write it jute when his Uriya informants pronounced it jhot? but looking to the innumerable instances in which that distinguished botanist, and European scholars generally, have softened, abraded, or otherwise altered vernacular terms in writing them in Roman letters, I think it may be set aside as altogether immaterial.

61. In paragraph 47 reference has already been made to the fact that Foreign origin of the jute plant, and the time when it was imported.

Some of the Sanskrit names of the Corchorus indicate time when it was imported.

cate that it was introduced into India from a foreign country; but the time when this introduction took place cannot be definitively fixed. The occurrence of the word patta in the Mahabharata takes us back to a remote period of antiquity, when exact dates were little cared for; and it would be labour lost to inquire of the date of, at the time so inconsequential an article as pat. It should be noticed, however, that though the plant was known in the country from the time of the Mahabharata, it was not very extensively cultivated until very recently. According to the reports received from the district officers, the cultivation of jute has been carried on in the districts of Bogra "since about the year 1847;" in the district of Noacolly and Tipperah for the last 20 years; in the 24-Pergunnahs "for many years;" in Hooghly "from a long time;" in Dacca "beyond the memory of man;" in Goalparah "before the time of British rule;" in Darjeeling "from the time of the Sikkim war;" and in Nowgong it is stated to have been known

so far back as "400 years ago," when the use of the fibre in tying up books was expressly prohibited by Sunkar and Madhow. In the extreme west of the Hooghly district, where it abuts upon Burdwan, and in the northern part of Burdwan itself, the cultivation was begun only so late as 1872. In Dacca, according to the evidence of Mr. Monier, which is not printed, but which coincides with information derived from other sources, jute began to be largely cultivated only in 1865. The increase has been marked in Goalparah within the last 7 or 8 years; in Furreedpore, within the last 9 or 10 years; in the Baraset Sub-division of the 24-Pergunnahs, within the last 10 or 12 years; and in Backergunge, within the last 15 years. In Mymensing and Rungpore the cultivation has been gradually spreading for the last 25 years or thereabouts, but the extension has been notable there since the cultivation of indigo was No precise period can be stated when the increase became marked in Rungpore. The increase, which has been progressive for about 25 years in Pubna, "has been significant within the last 6 or 7 years." It has been significant also in Purneah since 1867. In the remaining districts jute is simply stated to have been cultivated "from time immemorial."

It is scarcely necessary to observe here that these reports refer to the new impetus recently given to the export trade in jute. That it was largely cultivated for the fibre for home consumption, and also for gunny bags for the packing of articles exported from the country from a very early period, is well known.

- 62. As already stated, the jute of commerce is the product of two different species of plant, both belonging to the natural order Tiliaccæ. The order embraces several genera, the bark of which yields fibres; but of these the genus Corchorus is the most remarkable, as including six different species of valuable fibre-producing plants. These are Corchorus capsularis, C. olitorius, C. fuscus, C. fascicularis, C. trilocularis, and the C. decemangularis.
- The C. capsularis is an annual plant, growing from five to ten feet high, with a cylindrical stalk as thick as a man's Description of the C. Capsularis. finger, and seldom branching except near the top. The leaves, which are of a light green colour, are about 4 to 5 inches long by one inch and a half broad towards the base, but tapering upwards into a long sharp point with edges cut into saw-like teeth; the two teeth next the stalk being prolonged into bristle-like points. The flowers are small and of a whitish-yellow colour, coming out in clusters of two or three together opposite The seed-pods are short and globular, rough and wrinkled. In technical language it is thus described in botanical works:—"Annual, 5-10 feet: calyx deeply 5-cleft: petals 5: leaves alternate, oblong acuminate, serrated, two lower serratures terminating in narrow filaments: peduncles short: flowers whitish-yellow in clusters opposite the leaves: capsules globose, truncated, wrinkled and muricated, 5-celled: seeds few in each cell, without transverse partitions: in addition to the 5-partite cells there are other 5 alternating, smaller and empty."
- 64. The second species, the C. olitorius, is precisely similar to the last in general appearance, shape of leaves, colour of Description of the C. olitorius. flower, and habits of growth; but it differs entirely in the formation of the seed-pod, which, in this species, is elongated (about two inches long), almost cylindrical, and about the thickness of a quill. quote the following botanical description of the species from Major Drury's Useful Plants of India (p. 159):—" Annual, 5-6 feet erect: leaves alternate, ovate-accuminated, serrated, the two lower serratures terminated by a slender filament: peduncles 1-2 flowered: calyx 5-sepalled; petals 5 capsules nearly cylindrical, 10-ribbed, 5-celled, 5-valved: seeds numerous with nearly perfect transverse septa: flowers small, yellow." To convey an exact idea of the plant I annex a plate taken from a photograph of a plant reared in the Royal Botanic Garden, Sibpur, with which the foliation of the capsularis is almost identical. It shows the top of the plant in full flower with the seed-pods drawn separately on the sides. The pods of the capsularis are shown on the top of the plate.



Lithd by A.P. Bagehi, Student, Govt School of Art, Calcutta.

- 65. Each of these species has a white and a reddish variety. The stalks and leaves of the first variety are of a light green colour, whereas of the second variety the stalks are red and the leaves red-veined.
- 66. Of the other species of the Corchorus, which are said to yield jute,

 Botanical characters of the other but which are not ordinarily cultivated for their fibre, the following description is given by Dr. Roxburgh in his Flora Indica:—

"Č. fuscus (C. acutangularis, Lam.).—Annual. Leaves ovate-oblong. Stamina from ten to fifteen. (Style single). Capsules subcylindrical, six-angled,

three-pointed, three-celled, with one row of seeds in each.

"C. fascicularis.—Annual, erect, ramous. Leaves lanceolate, serrate. Flowers in laterifolius, subsessile fascicles, sub-pentandrous. Capsules cylindric, three-celled.

"C. trilocularis.—Annual, erect. Leaves lanceolate, serrate, the lower serratures with or without a bristle. Stipules ensiform. Flowers paired, peduncled, and pedicelled. Capsules filiform, three-celled, hispid; apex entire and obtuse.

" C. decemangularis .- Annual, erect. Leaves elliptically oblong, obtusely ser-

rate, lower serratures with or without a bristle.

Stipules ensiform. Flowers paired, subsessile. Capsules cylindric, ten-ribbed, five-celled; seeds imperfectly separated."

- It is clear from the reports of local officers, and from local inquiries made by us, that the two species first named, viz. C. The identity of the jute plant proved by experiment. capsularis and C. olitorius, are the only plants which yield the real jute fibre. With a view to place this conclusion beyond all question, we caused a series of experiments to be made in the Royal Botanic Garden at Sibpur with seeds obtained by us from the several districts of Bengal, in which jute, or fibres passed sometimes for jute, are raised largely, scantily, or at all. The results of these experiments have been tabulated in the annexed statement (Appendix C, p. LI,) furnished by the Superintendent of the Garden, showing the districts where jute and the fibres palmed off for jute are grown, with the local and botanical names of the plants assigned to each description of seed procured by us, by the Superintendent after an experimental cultivation; and they clearly demonstrate that the two species named are the only plants which yield the true jute of commerce.
- Girculation of a photograph of a jute after the constitution of the Commission, His Honor the Lieutenant-Governor thought it advisable to circulate a photograph of the top of a jute plant (life size), accompanied by a popular description of it, and to ask local officers to compare the photograph and description with the plants actually grown in their respective districts, to note points of resemblance or difference that might be observed, and to transmit seeds and seed-pods of the plants locally known as jute, in order that the nature of the plant or plants from which the real juto is drawn, and the extent to which such plant or plants are cultivated in Bengal, might be precisely determined.
- 69. The reports of the local officers, and an inspection of the seeds and seed-pods received therewith, proved it to be beyond doubt that the real jute is produced by the two species abovenamed, and that either one or the other of the two, or both varieties, are cultivated in forty-seven out of the fifty-eight districts embraced in the Lieutenant-Governorship of Bengal. In most districts of Lower Bengal both varieties of the two species are grown. The C. capsularis, however, is principally cultivated in the central and in some of the eastern districts, where, except in parts of Mymensing, the other species and its varieties are rare. But in the districts near Calcutta the C. olitorius is more largely grown, and from its fibre is manufactured the well-known Luckhipore jute of Hooghly and the 24-Pergunnahs, which also goes by the name of desi jute.

The names of the several districts, arranged according to the extent to which the jute plant is cultivated in each, are given below:—

Pubna... Both C. capsularis and C. olitorius. ... Ditto. Dinagepore ... Ditto. Rungpore Mymensing ... Ditto. ... Ditto. Tipperah Purneah ... Ditto. Julpigoree ... Ditto. 24-Pergunnahs Ditto. ... Ditto. Bogra ... Ditto. Rajshahye ... Ditto. Dacca Hooghly ... Ditto. Cooch Behar ... C. capsularis only. Furreedpore Both C. capsularis and C. olitorius. ... C. capsularis only. Goalparah Backergunge Both C. capsularis and C. olitorius. ... Ditto. Midnapore Sunderbuns of Jessore, 24-Pergunnahs, and Backergunge... Ditto. ... Ditto. Cuttack Tributary Mehals ... Ditto. Burdwan ... Ditto. Moorshedabad... Ditto. ... Ditto. Noakhally Maldah ... Ditto. Howrah ... Ditto.

Darjeeling... Both C. capsularis and C. olitorius. Nowgong ... Ditto. Pooree ... Ditto. ... Ditto. Nuddea Balasore ... C. capsularis only. Sylhet ... Ditto. Kamroop ... Ditto. Durrung ... Ditto. Chittagong ... Ditto. ... Ditto. Cachar Cuttack... Both C. capsularis and C. olitorius. *Bancoorah... C. capsularis only. *Beerbhoom... Both C. capsularis and C. olitorius. Tirhoot ... Ditto. Bhaugulpore ... Ditto. Sonthal Pergunnahs .. Ditto. Singbhoom... C. olitorius only. Maunbhoom... Both C. capsularis and C. olitorius. *Seebsaugor ... Ditto. Luckhimpore ... Ditto. Chota Nagpore, Tributary Mehals, Ditto. †Lohardugga ... Ditto. *Hill Tracts of Chittagong ... C.

. capsularis only.

70. Generally speaking, jute is extensively cultivated in the districts of Pubna, Dinagepore, Rungpore, Mymensing, Tipperah, Purneah, Julpigoree, Bogra, Dacca, Hooghly, and the 24-Pergunnahs; moderately in Cooch Behar, Furreedpore, Goalparah, Rajshahye, and Backergunge; scantily in Midnapore, Burdwan, Nuddea, Moorshedabad, Maldah, Howrah, Tirhoot, and Bhaugulpore. The Commissioner of the Sunderbuns and the Deputy Commissioners of Durrung, Nowgong, Seebsaugor, the Sonthal Pergunnahs, Maunbhoom, Singbhoom, and Cachar, state that whatever jute is grown in their respective jurisdictions is locally consumed, and the produce in some cases is insufficient even for local demands. I annex a map showing the districts and parts of districts in the provinces under the Government of Bengal where jute is grown, and the different qualities of the fibres produced. The map is so shaded as to show at a glance the extent of cultivation in each district.

71. The following special remarks extracted from the local reports regarding some of these districts, may perhaps be of interest, as accounting for the backwardness of jute cultivation in those districts:—

Jessore.—" One cause of the depressed condition of jute cultivation is that in the northern divisions of the districts the ryots' attention is engrossed by the two most important manufactures of indigo and date-sugar."

Burdwan.—" The cultivation of jute attracts little attention of the agriculturists of this district. The reason is obvious enough; the soil over a great part of the district is generally hard, and on the west it is laterite, and therefore unsuited to the cultivation of this crop."

Grown as an edible.

⁺ Grow wild.

Moorshedabad.—"There is no trade of any extent in the article." The present condition of the cultivation "enables the natives of the district to supply their home wants, and so far benefit the people. As the cultivation is on a very small scale, it does not affect the production of the necessary amount of cereals."

Maldah.—"A considerable proportion of the district consists of alluvial

soil, and is too light for the growth of the fibre-producing plants."

Bancoorah.—" In this district there is no regular cultivation of jute. In Thannah Bissenpore it is grown in small quantities as an edible, and in Thannah Onda sugarcane fields are occasionally fenced with the jute plant." The soil in this district is generally not favorable to jute.

Beerbhoom.—" The plant or plants known as Kostá or Pát is not grown for fibre in any part of this district. Here and there a plant called Pát or Botocary is grown for the leaves, which are eaten as a vegetable." The soil

here, as in the last named district, is not well suited for jute.

Statul Pergunnals.—" The jute cultivation is carried on in this tract on a very limited scale, both because the cultivating classes are wanting in enterprise, as well as because the soil is not generally adapted to the growth of the plant."

Maunbhoom.—The soil and climate of this district, where the jute cultivation is carried on only to a small extent, are considered not "well adapted for the growth of fibre-yielding plants."

Districts where jute is not grown 72. No jute is grown in the following at all.

Hill Tipperah.
Patna.
Gya.
Shahabad.
Sarun.
Chumparun.

Monghyr.
Hazareebaugh.
Naga Hills.
Khasi and Jynteah Hills.
Garo Hills.

- 73. In so wide and diversified a tract of country as Bengal is, it is to be expected that the physical character of the land on which the jute plant is grown should vary considerably in different parts. High lands, low lands, recent alluvial formations or churs, dry lands, humid lands, are all more or less cultivated with jute. Generally, however, all such lands may be classed under the heads of—1st, Súná, high land, which is generally reserved for the cultivation of fruit-trees, pulses, vegetables, tobacco, sugarcane, and the early rice; and, 2nd, Sáli, or low land, on which the late rice-crop is grown.
 - 74. As regards the first description, i.e., súná land, I quote the following extracts from the reports of local officers:—

Nuddea.—" Jute is sown on high and dry lands fitted for sowing auspaddy, and cereals."

Jessore.—" The cultivation is carried on on deserted homesteads and pálan

lands adjoining a ryot's residence."

24-Pergunnahs.—" Jute is always cultivated on high lands, i.e., lands fit for homesteads and for the aus rice crop."

Hooghly.—" High paddy lands, viz. those on which aus paddy is culti-

vated, are the lands which are used for jute cultivation."

Rungpore.—" Low grounds are rejected, because water collects there during the rains, which is prejudicial to the growth of the plant."

Mymensing.—"The aus varieties of jute are cultivated upon high lands

near the ryot's house, and not subject to inundation."

Dacca.—"On the higher lands a finer and shorter fibre grows."

Sylhet.—"The quality of jute produced on churs is comparatively inferior to that produced on chora lands (high lands close to homesteads)."

Durrung.—" The situation chosen, generally speaking, is within the home-

stead land, or immediately outside its limit."

Tirhoot.—"It is also grown in mutyar and bheet," i.e., foundations of homesteads.

Bhaugulpore.—" The land selected is generally high and rich from its

vicinity to the villages."

Mr. Gordon, Superintendent of the Gouripore Mills, whose evidence is entitled to much weight, says that the high land crops, which he experimentally cultivated, gave a far superior yield to the plants on the chur lands in strength, length, and colour of fibre; (Appendix B, No. 21, p. xv,) and this opinion is supported by the testimony of Mr. David of Dacca (Appendix B, No. 3, p. 111,) whose experience of jute is large. He says, "High lands produce the best jute." Dr. Roxburgh, in a paper written in January 1801, observes:—"Hemp may be cultivated to greater advantage over the interior parts of Bengal and Behar, where the seed should be sown about the beginning of the periodical rains, or earlier, if there have been frequent showers, on elevated spots of rich loamy soil, such as the ryots cultivate tobacco, sunn and pát on, near their habitation."

75. On the other hand the district reports from Furreedpore, Backer-gunge, Pubna, and Mymensingh, supply a great weight of evidence in favour of the adaptability of

sáli land to the culture of jute.

The Collector of Mymensing especially remarks that in that district

"probably at least four-fifths of the jute is grown upon the low lands."

The sub-divisional officer at Serajgunge, in Pubna, states:—" I find that the land sown with til and amun, which in these parts are planted at the same time and on the same field, is sown with jute when the crop is required."

The Magistrate of Furreedpore observes:—"Bellan pát will grow in shallow

water without injury."

76. There is ample evidence also to show that the jute plant thrives freely on *chur* lands, especially such as are renovated by deposits of silt left on the subsidence of the annual floods.

The Collector of Tipperah, in whose district jute is largely grown, observes:—"The best kind of soil is that which is loamy and sandy, as on the river banks and in churs."

The Collector of Dacca remarks:—"The coarsor, heavier jute is grown on lowish chur lands all over the district."

Sheik Shoker Mahmood, in his evidence, says:—"The land on which I

grow it (jute) is chur land." (Appendix B, No. 60, p. xli.)

Baboo Ram Sunker Sen, in an interesting paper he wrote in 1864, expresses his opinion that *churs* are especially well adapted to the growth of the plant.

During the course of our own local inquiries, we saw the churs on both sides of the rivers Brahmaputra, Teesta, Lukheea, covered all over with exten-

sive fields of jute.

77. The plant also grows luxuriantly in the Sunderbuns, where the land is more or less impregnated with salt; and I have seen jute thrive in the marshes of Furreedpore and Backergunge in waist-deep water. The fact is, the growing demand for the staple has stimulated cultivation to such an extent that, as the Collector of Rungpore very justly observes, "it has caused all kinds of soil to be used independently of their fitness for the cultivation, whenever other circumstances are favourable, and a crop can be anyhow raised;" and according to the evidence of Mr. David, already referred to, "cultivators sow jute anywhere. Last year they even cleared away bamboo jungle to sow jute." (Appendix B, No. 3, p. III.)

78. The great bulk of jute that comes from the central and some of the Relative values of different kinds of eastern districts is grown on churs and on inferior soil, but in the desi, or the littoral districts, a larger proportion is grown inland than on the banks of the rivers. In the early days of this cultivation, however, when jute was raised for home consumption only, it used to be grown only on raised lands close to the grower's homestead. On the whole, the balance of evidence is decidedly in favour of high or súnu lands as the best for jute, provided all the other conditions

necessary for its healthy growth be attainable; but that low lands and churs are not unsuited, churs ranking midway between the two.

79. In most of the reports received, references are made to the adaptability or otherwise of the soils of particular places to the jute Chemical character of jute land. plant, and the laterite and other soils are described as unfit for its cultivation; but no detailed description has been obtained regarding the nature and constituents of the soil best suited to it. The attention of the Commission was especially directed to the subject by Government, and the Commissioners tried their utmost to obtain, full information under this head. Unfortunately, however, the Commissioners were not in a position themselves to carry on any extensive series of chemical analyses of soils, and the time of the Government Chemical Examiner was so fully occupied by other and onerous duties that he could not help them in the matter. The conditions which he laid down for the collection of soils were also such that the Commission could not carry them out, particularly as it was necessary for a satisfactory chemical solution of the several questions involved that at least five hundred different specimens of soils should be analysed, so that comparisons may be made of the different kinds of soil on which the jute plant grows equally well, but which apparently are dissimilar, and those special constituents of the soil which are peculiarly favorable to the jute plant, and without which it does not thrive, may be ascertained. Under these circumstances I am obliged to depend upon such popular descriptions of soil as are familiar to the people of this country, and what the local officers have used in their reports.

80. In the district of Burdwan the plant is grown on döds máti, or soil composed of rich clay and sand in equal or nearly equal proportions. In Mymensing it grows on "soil consisting of a mixture of clay and sand, or sand combined with alluvial deposit; in Backergunge, "on loam mixed with a little sand;" in Cooch Behar, "on soil with a certain admixture of sand;" in Tipperah, "on loamy and sandy" soil; in Pubna, "on land which is neither inundated, nor dry, the soil being loam, i.e., half clay and half sand."

On the other hand the jute plant appears not to be averse to a clayey soil. It grows in the Barripore Sub-division of the 24-Pergunnahs "on mátiál or clayey soil;" in Hooghly, according to the district officer and Baboo Joykissen Mookerjee, "on clayey soil," which in their opinion is "best suited for jute cultivation;" in Moorshedabad also on "clayey soil," which is considered there, too, to be "best adapted for jute;" in Noakhally "on high land, the soil of which is called áttáliá," i.e., stiff and sticky; and in Cuttack "on high land, * * rich and clayey."

It also thrives in ferruginous soil, as in Bhowal, in the district of Dacca, where jute is pretty largely cultivated; and the fibre produced there is considered to be among the best descriptions which find their way to the markets of Dacca and Naraingunge.

81. Laterite and gravelly soil are, however, not favorable to the growth of this plant, and in confirmation of this opinion I may instance the cases of Bancoorah, Beerbhoom, and portions of Burdwan and Midnapore, where the soil is chiefly laterite, and where consequently jute is very scantily reised; as also of Hazareebaugh, where the soil is chiefly gravelly and dry.

Indeed, accounting for the very meagre cultivation of this plant for the manufacture of fibre, the local reports from the three first named districts, as has been shown before (ante, p. 23), lay great stress on the unsuitability of the laterite soil of the greater part of those districts to the growth of jute. Even in this there is, however, an exception. The Collector of Midnapore, in whose district the fibratis pretty extensively grown, observes, "Jute grows in laterite soil;" he adds, however, that "in such soil it does thrive, but not so well as in soil of a deep alluvial description. For instance the jute grown in the Jungle Mchals, the soil of which is laterite, does not thrive so well as that in the Bar Mehals, which are composed of deep alluvium." A light sandy soil is not also well suited

to jute, and Chumparun, Sarun, Gya, and Shahabad, where the character of

the surface is mostly sandy, do not grow jute at all.

As regards climate, the tenor of the local reports and the information gathered by the late Mr. Anstruther and myself, alike go to show that a hot, damp atmosphere is Favorable climatic conditions. most favorable to the growth of the plant. Too much rain at the beginning of the season and early floods are equally destructive to the young plants, and injurious to the prospects of the crop. Except in low situations, seeds are never sown until after a shower of rain to help germination. Alternate rain and sunshine are found to be most congenial to the jute plant, but excessive rain after the plant has attained a height of two to three feet will not prove materially injurious so long as no water lodges at the roots. The water when so lodged does not kill the plant, for, as already stated, (ante, p. 23) in the Backergunge and Furreedpore districts jute grows even in waist-deep water; but it promotes the growth of suckers, which makes the fibre what is technically called "rooty." It should be added here that in the deorá districts of Furreedpore and Backergunge the plant which thrives well in marshes is the deorá jute, which in reality is only the mestá (Hibiscus cannabinus), and the bulk of the jute proper produced there is universally considered of comparatively much less commercial value.

Frequent light showers at first, and heavier rains afterwards, with the gradual rise of the rivers, and a fair amount of sunshine, contribute very largely to the healthy growth of the plant. My inquiries lead me to believe that it suffers less injury from excess of rainfall than from the entire It is admitted on all hands that drought always stunts their growth, and very often, as we ourselves observed during the present year in Rungpore and Goalparah, even destroys them, if not sufficiently developed. But heavy rains have no such destructive effect on the plant so long as they do not drown the plants and there is sufficient sunshine to afford the necessary warmth. It is this want of heavy rain or humidity in the atmosphere, added to the unsuitableness of the soil, that jute is so little grown in Bancoorah and Beerbhoom and in the districts of the Chota Nagpore Division, and that in the districts of Monghyr, Patna, Gya, Shahabad, Sarun, and Chumparun, it is not grown at all. The Collector of Sarun writes that the dryness of the climate in that district is in his opinion the probable reason why jute is not grown there. To the same effect is the opinion of the Collector of Monghyr, who, in sending up a specimen of jute grown in the Government garden, where the crop proved to be a failure, writes: "As I have said before, I do not think the dry climate of Monghyr is well suited to the growth of the plant." In Lucknow, I learn from a communication made by the Chief Commissioner of Oudh to the Government of Bengal, the cultivation of jute was attempted in the experimental garden there, but it failed. Sir George Couper has, however, expressed his readiness to direct a trial to be given to the cultivation in the more humid climate of the Terai.

83. The periods of the year for sowing, and the manner in which the land is prepared for the jute cultivation, vary in different districts, and sometimes even in different parts of the same district.

24-Pergunnahs.—In the sudder sub-division of this district land is broken up from September till November (Aswina and Kártika), and ploughing is repeated at intervals of 30 days till Fálguna (February—March), when the land is again ploughed four or five times successively. In the Satkheera sub-division land is ploughed in Kártika (October—November) and left untouched till May or June (Vaisákha or Jyaistha), when it is re-ploughed twice or thrice, and levelled with the moi, an implement which is also called bansooi or ladder, it being in fact a rude substitute for a harrow made of bamboos. In the Baraset sub-division land is ploughed ten or twelve times from October till May (Kártika to Vaisákha). In the Barripore sub-division it is ploughed five or six times in Mágha and Fálguna (February and March), after the removal of the cold-weather crops. In the Diamond Harbour sub-division

it is ploughed in Vaisakha (April—May), allowed to lie untouched for ten days, then levelled and weeded. In the Basirhat sub-division it is ploughed and harrowed from eight to ten times, so late as in the beginning of June (Jyaistha).

Mymensing.—Like rice, jute in this district is of two descriptions, namely, aus and aman. The aus jute is sown earlier than the aman, and the field on which it is to be grown is sometimes laid with manure, which is never used in the the case of the aman crop. The tillage in some places is begun between August and October; mustard is sown thereon in Kartika (October—November); the ploughing is then repeated eight or ten times in Magha (January—February). In other places, especially on the skirts of beels, when the cold-weather crops are removed in January and February, land is ploughed four times, and, after a few days, levelled with a ladder, then ploughed up again as often. Near the time of sowing it is thoroughly re-ploughed; the clods are broken with a mattock or with the ladder, and the weeds are removed to a good extent, but not thoroughly. High lands, however, are ploughed in May (Vaisakha). The land is manured sometimes, but with cow-dung only. According to some authority the land is in some cases ploughed as often as twenty-five times. (History and Statistics of the Dacca Division, 1868.)

Hooghly.—The land is ploughed from three to five times, twice harrowed, levelled with the ladder, and once weeded. In some places the tillage is begun in October (Kártika), and in other places, the Serampore sub-division for instance, in Fálguna (February—March). Sometimes fresh earth and sometimes cow-dung is used by way of manure; but where the soil is poor, oil-cake is substituted. Sheeps' dung and urine have also been successfully tried.

is substituted. Sheeps' dung and urine have also been successfully tried.

Burdwan.—The ploughing of the land is begun in Magha (January—February), and is repeated about eight times till Vaisakha (April—May). The

land is also manured with cow-dung and levelled.

Bhaugulpore.—The land is dug up or ploughed twice in Magha (January—February), and again as often in the end of May or beginning of June (Jyaistha). The weeds are then left to dry till about the end of July, or the beginning of

August (Srávana), when the field is ploughed again.

Furreedpore.—The land is twice ploughed and harrowed in Mágha (January—February), and is subjected to the same processes, as often in Fálguna (February—March) and again in Chaitra (April), when it is turned up with the country hoe. In some places it is ploughed for the first time in Chaitra (March—April), and the clods are thoroughly broken up.

Backergunge.—In this district the tillage is begun in Kartika (October—November), when the land is prepared for the winter crop. After that crop has been harvested in Falguna, the worst jute land, i.e., such as have a hard dry soil overrun with grass, is ploughed five times, and harrowed twice; ordinary land is ploughed four times, and harrowed once; while swampy land with little

or no vegetation on it is ploughed thrice and harrowed once.

Rungpore.—The tillage takes places from November till February (Aghrána to Mágha). The land is twice ploughed, and then harrowed to level the surface and collect the clods of earth and weeds thrown up by the plough. The weeds are burnt on the ground, and the clods are broken with the kurshi, a sort of mallet. The land is then re-ploughed. Before sowing it is again twice ploughed and harrowed. In Kankina in this district, when the ryot does not own and cannot afford to hire a plough and cattle, the land is turned up with the hoe.

Goalparah.—As in the case of the aus paddy crops, so in that of jute, the land on which it is grown is tilled in Fálguna (February—March), and the

clods of earth turned up by the plough are broken down with the ladder.

Dasca.—"The oftener and the more thoroughly the land is ploughed the larger is the yield. The time of tillage, however, varies. Friable, sandy soils are ploughed as early as in March, but the larger proportion of the land in the district only after the first showers of rain in April."

Pubna.—The tillage here is begun sometimes in Aghrána (November—December) and sometimes in Mágha (January—February). The land is

ploughed and harrowed, and the clods are broken with a mattock.

Tipperah.—The land is manured with cow-dung and then ploughed and harrowed in December: in the Bramunbaria sub-division and in the Comillah sub-division, a few days before sowing.

Sylhet.—The land is here manured with cow-dung first in Kartika (October-November), and again in Vaisákha (April-May), when it is ploughed

for the sowings.

By way of a summary of the above, it may be generally said that the preparation of the soil is commenced early in the case of the low lands, churs, beels, &c., * where there is considerable risk of water rising high very early, but deferred to a later period in that of high lands, where no such apprehension need be entertained. The number of ploughings required is dependent entirely on the nature of the soil; a clayey hard soil requiring a greater number of ploughings than a light sandy or loamy one. Under any circumstance the land should be so ploughed as to render the soil finely pulverulent, and to expose every part of it repeatedly to the sun.

Little attention seems to be paid by cultivators in the selection of seeds for the cultivation of the jute plant.

Seed used. Except in the Serampore sub-division and in some other parts of the Hooghly district, seed is generally gathered in October from the worst plants purposely left standing in the outskirts of the fields after the harvest has been reaped. The reason for the preference of the bad plants for seed is that they are not good for fibre, and if not utilized for seeds would be wasted, and the ryot does not wish to lose the benefit of the fibre to be obtained from the well-grown plants by allowing them to remain standing till the seed-pods are matured. In the Mymensing district a portion of the field is set aside for seeds without reference to the quality of the plants growing thereon, and so both healthy and ill-grown plants indiscriminately contribute the seeds used there.

As a rule, jute seed is not bought and sold, but it is, as stated 85. before, generally preserved by the ryots from plants Preservation of seed.

specially set apart.
"Towards Dacca," says Mr. Thornton of Naraingunge (Appendix B, No. 40, p. xxix), "the seed for sowing is taken from the plants outside the field, that is, from the stunted plants which will not yield fibre good enough for the market."

Kodrutoollah Mollah and others of Furreedpore admitted before me (Appendix B, No. 48, p. xxxIII), that a corner of the field with ill-grown plants

is reserved for seeds; these are cut in Kartik.
On the other hand, Baboo Mudun Mohun Bysack of Dacca, in his statement (Appendix B, No. 41, p. xxx) says: "If possible, seeds for next year's sowing are taken from the best and the most healthy plants." In Backer-gunge the cultivators (Appendix B, No. 50, p. xxxv) said: "In this part of the district the best plants are left for seeds." Well-grown plants are also occasionally set apart for the same purpose in parts of Mymensing and other districts.

My inquiries, however, go to show that in most instances the plants in a corner of the field are left for seed, and are cut in Aswina or Kartika (September, October and November). After gathering the pods they are dried in the sun for four or five days, in Goalparah the period of drying being extended from five to ten days (evidence of Shoar Nysho, Appendix B, No. 65, p. XLIV). The seeds are then threshed, gathered, and stored up either in a basket, bag,

or earthen pot.

But I have nowhere heard of a practice referred to by Dr. McDonell, the Managing Director of the Serajgunge Jute Mills, in the following passage of a memorandum now before me:—"I have been told that the seed ought not to be allowed to ripen on the plant, but that the top branches, on which the capsules containing the seed grows ought to be cut at an early period, and dipped into hot water for a moment, and then allowed to dry. Seed thus prepared is said to give a far better crop than that allowed to ripen on the stems."

No change of seed is ever resorted to in any district, as far as I have been able to ascertain; and for this, among other Seed never changed. reasons, no improvement is to be found in the jute

plant now grown.

I have already said that, as a rule, the seed of jute is not bought and sold; but when it is sold it does not fetch more than Price of seed. Rs. 2 the maund, though in times of demand the price sometimes rises to 4 or 5 seers the rupee. Mr. Gordon, the Superintendent of the Gouripore Mills, once paid so much as Rs. 10 a maund for seed which he purchased in the village of Nyehatee.

- From inquiries made by me, I learn that the average produce per acre of the jute seed (without husks) is about 41 Average produce of seed. maunds of 80 tolahs to the seer.
- The quantity of seed used in sowing a beegah of land varies greatly in different districts; thus:— Quantity of seed used to a beegah.

					Seers.
Hooghly	• •	• •	• •	• •	1 3
Sylhet and Backer	gunge	• •			1
Mymensing	• •	••	• •		14
Goalparah	• •	• •		• •	2
Backergunge and I	lajshahye	• •	• •	• •	$2\frac{1}{2}$
Rungpore	••	• •	• •	• •	2 to 3
Furreedpore	••	• •	• •	• •	• 3
24-Pergunnahs	• •		• •	• •	4
Bhaugulpore		••	• •	• •	5
Burdwan	• •	• •	• •	• •	$6\frac{1}{2}$

As in the case of ploughing, so in the period of sowing, there are marked differences; but the mode of sowing is with one excep-Sowing. tion alike everywhere. The seeds are sown broadcast on a clear, sunny day, and covered over with a thin crust of earth, either by the hand, or by a bindá or harrow, or a moi or ladder, or, as in Bhaugulpore and Julpigoree, by beams of wood drawn over the field by oxen. The exception refers to some tracts in the Sylhet district where sowing is effected in seed-beds, and the seedlings are subsequently transplanted in the fields. The following are the details of the different times selected by the ryots for sowing in some of the jute-growing districts:-

24-Pergunnahs.—The seed is sown in the month of Jyaistha (May—June) in the Satkheera and Baraset sub-divisions after a shower of rain, and from latter end of Vaisákha till the middle of Jyaistha in the Barripore and Diamond. Harbour sub-divisions, and also in the sudder sub-division.

Pubna.—The sowings are carried on here from the close of February to the beginning of May, the earlier season being selected for the low lands subject to inundation, and the later for the high lands, being timed also as much as possible according to the rainfall during the intervening period.

Mymensing.—The land is sown in this district from the middle to the end of Chaitra (March—April), as soon as it has been sufficiently moistened by a fall

of rain.

Dacca.—According to the nature of the land on which the crop is to be grown, the seed is here put down between the end of March (middle of Chaitra) and the beginning of June (middle of Jyaistha).

Backergunge.—Seed is sown at the end of March or beginning of April

(Chaitra).

Rajshahye.—The time for sowing depends much upon soil and situation, but ordinarily it is between March (middle of Falgún) and middle of April (end of Chaitra), though in some cases a later season is not held objectionable.

Dinagepore. —Here the sowings take place from the 15th of March till the

middle of May (Chaitra, Vaisákha, and Jyaistha).

Goalparah.—The sowing is begun here after a shower of rain in April and continued till the end of May (middle of Jyaistha).

Julpigoree.—Seed is sown in March and April (Chaitra and middle of Vaisakha).

91. On germination, which takes place within three to four days after sowing in Backergunge, Mymensing, and Julpigoree, and seven to eight days in Rajshahye and Luckhimpore,

the fields are harrowed, or weeded, or subjected to both processes.

In Pubna, the field is "weeded once, or at most twice," and the plants are thinned; in Dacca it is weeded "as often as necessary" after the plant "grows an inch or two high;" in Tipperah, "when the plants are two feet high, the weakly ones are removed to thin the field;" in Rajshahye, when the plants are sufficiently high, "say half a cubit or 9 inches high," the field "is well weeded;" in Mymensing, the weeding is done with a binda or harrow, but in some parts of the district "a scyin (a kind of scythe with a sharp, convex edge) is used;" in Backergunge, "the field is once weeded on germination, and again sometimes when the plants are 15 to 18 inches in height;" in the Scrampore sub-division of Hooghly, "when the plants are about 5 inches high, the field is weeded and thinned;" in Furreedpore, "when the plants are from 4 to 8 feet high, the field is sometimes weeded;" in the Baraset sub-division of the 24-Pergunnahs the field is harrowed and weeded when the plants are a foot high, and the weeding is done when the plants are 5 or 6 inches high; and the process is repeated twice and even thrice in the Burdwan district.

No tending is considered necessary after germination in some parts of

No tending is considered necessary after 'germination in some parts of Furreedpore, and after the plants are sufficiently grown in the Basirhaut sub-division of the 24-Pergunnahs. In the Satkheera sub-division of the 24-Pergunnahs no weeding is ever resorted to. In other districts the processes

of weeding and thinning are carried on in different degrees.

92. Overcrowding in a field is known to check the full development of the jute plant, and for this reason the crop is thinned whenever it becomes too thick by the removal of the more backward plants. Ordinarily the space left between the plants is six inches, and the thinning is carried to that extent, but in some places the plants are left wider apart. In the Barripore and Diamond Harbour sub-divisions of the 24-Pergunnahs the usual distance from plant to plant is 8 to 10 inches.

- The season for the jute harvest necessarily depends on the time when 93. the seed has been sown. In Maldah the crop is Season of reaping. reaped from the beginning of June (middle of . Jyaistha) till the end of August (middle of Bhádra); in Cachar and Backergunge, and in some parts of Furreedpore, from the beginning of July (middle of Ashadha) to the end of August (middle of Bhadra); in Cuttack, in all August (from the middle of Srávana to the middle of Bhádra); in Nowgong from the middle of July to the middle of September (Srávana and Bhádra); and in Goalparah from September till the end of November (middle of Bhádra to the middle of Aghrana). In Luckimpore, in the Baraset sub-division of the 24-Pergunnahs, and in some parts of Furreedpore, the jute is harvested from the middle of August to the middle of October (Bhádra and Aswina). About this time the aus jute is also cut in Mymensing. In Rajshahye the plants of the sowings of Falguna and Chaitra are ready for the sickle at the end of June or beginning of July (middle of Ashádha); but the plants of later sowings are cut in September or the beginning of October (Bhádra and Aswina). In certain parts of Pubna where deswal jute is grown, the crop is harvested so early that the new fibre is often brought into market about the 15th of June. During the present year Mr. Anstruther and myself saw new jute at Serajgunge on the 26th June.
 - 94. The jute plant is cut generally near the root, unless the lower end is overrun with suckers. The instrument used is either a bill-hook (ddo) or a sickle (kasté) in all the districts of Bengal, except in some parts of Furreedpore, where the plants are pulled up, when growing on swampy land under any depth of water.

The time considered best for cutting the plant is when it is in flower, and just before the appearance of the pods. Condition of the plants at the time of the plant, then cut, is of superior quality. so happens that about this time the ryot's attention

is engaged with other crops, either to be sown or reaped; and the great mass of ryots are not in circumstances to incur the necessary outlay for hired labour to The plants are therefore often allowed to run to seed, gather in this crop. sometimes even the seed-pods are allowed to ripen before the crop is cut.

Sometimes, again, it also happens that to avoid an impending deluge of water on the fields, and sometimes, too, from a wish to be early in the market,

the ryot pulls up or cuts the plant even before it has flowered.

The fibre from the plants which have not flowered is weak; while the fibre from the plants in seed is harsh and wanting in gloss, though it is heavier and stronger than the fibre of the plants cut in flowers. Whenever practicable, however, the plant is cut, either when flowering or when the flowering is just completed.

96. Among the chief reasons for the late cutting of the plant, the ryots of Meergunge on the Teesta, a place notorious for the State of plant when cut. bad quality of its jute, urge that the "plants cut in flower do not yield a large quantity of fibre." They say: "We cut in seed; and many people cut when the seeds are almost ripe." It is evident that this is the principal cause of the fibre becoming woody. Besides, when the plants "are cut in the months of Aswina and Kártika, the water in the bheels, &c., almost

dries up, and the stalks are deprived of the means of proper rotting." The traders at Meergunge, whom the Commission consulted, complained that the late cutting practised in Meergunge not only made the fibre woody, They say: "We have repeatedly pointed this out but also spoiled its colour. to the ryots; but they do not heed us, and persist in old customs. Ryots here, instead of cutting a few inches above the root, as is done in other places, cut as close to the root as possible, thinking that they lose so much in weight if they cut a few inches higher. The jute plant if cut in flower will yield half of

what the produce will be if cut late in the season and in full seed."

After the crop has been collected, the plants are in some districts stacked in the field and exposed to the action of Preparation before steeping. the dew and sunshine, till the leaves, which if steeped along with the stalks are said to discolour the fibre, have dropped off. In others the leaves are said to add to the weight of the stalks and make them sink readily, and therefore they are not removed. Elsewhere the process of stacking is said to bring on the rotting of the bark more quickly, and accordingly the plants, after reaping, are left in the field for two days in Jessore, Burdwan, Hooghly, and Howrah; for two to three days in the Baraset subdivision of the 24-Pergunnahs, in Julpigoree, Sylhet, and Tirhoot; for three to four days in Cachar, Darjeeling, and in the Scrampore sub-division of Hooghly; for five days in Bhaugulpore; and for seven to eight days in the Diamond Harbour sub-division of the 24-Pergunnahs. But in the great majority of districts stacking is not practised.

The stalks, when cut, are made up into bundles, each of a weight sufficient for one man to carry, and in some places of two sizes, long and short, and in

other places of three sizes, long, middling, and short.

The swaths or bundles of stalks, except in the districts above named, are thrown into water at once after the plants have Retting. been reaped.

The district officers, private gentlemen, and agriculturists consulted, 99. are, with one or two exceptions, unanimously of Water for retting. opinion that stagnant water, especially such as contains a large proportion of decomposing vegetation, expedites the process of retting. There is great risk of the bundles being swept away by a sudden flood if steeped in a stream; serious disadvantage is also apprehended of the fibre being impregnated with the sand which is always carried in suspension by river currents. Stagnant water, therefore, wherever accessible, is resorted

to for this process. But where *bheels* and stagnant sheets of water are not accessible, or where the river is near at hand, the stalks are steeped in the still pools or bays of a tidal river, and sometimes also in running water.

The sub-divisional officer at Bramunbaria, in Tipperah, says: "Tidal (running) water is said to be preferable to stagnant, as the fibre in the former case is stronger." To the same effect writes the Commissioner of Chittagong:—
"The quality of fibre depends on the description of water in which the plant is steeped. The Buldakhal jute claims its superiority simply because of the contiguity of the River Megna, which affords facilities and good water for steeping purposes; but in Sarail, as recourse is had to bheels and khals, the fibre is deficient in glossiness, fineness, and 'colour.'" Streams, however, are not readily accessible everywhere, and therefore even where the cultivators are willing to have recourse to them, they are driven to the necessity of carrying on their operations in bheels and pools which happen to be close at hand.

101. In steeping the stalks in water, they are covered with a layer of refuse tops of the jute plants, or other jungly plants, or with clods of earth, sometimes with cow-dung, sometimes with the trunks of plantain trees, or logs of the date tree, and sometimes with straw smeared with mud. This is done partly with a view to protect the upper parts of the bundles from the action of the sun, and partly to keep the stalks sufficiently below the surface of the water, and also, it is believed, to hasten the process of rotting. In some places the bundles are at first sunk by the root end, which is harder, leaving the upper end exposed above the water, and then after ten or twelve days the upper end is pressed down to the same level with the root ends, so that the whole length of the stalks may rot uniformly. In some places, the bundles are turned over while steeping.

In Dinagepore I find a singularly exceptional variation in one part of this process, mentioned by Baboo Khetter Mohun Sing, the manager of the Dinagepore. Rajah's estates. He says: "After the plants are cut and the leaves shaken off, they are collected into bundles and a mixture of dung and water being besprinkled over them, they are kept afloat for three days on the surface of the water."

I note this peculiarity both because Dinagepore is the second largest jute-growing district in this province, and because Baboo Khetter Mohun Sing, from his special local opportunities, must have observed what he describes. I find, however, no mention of it in the district officer's report, nor the remotest allusion to it, either in the reports from other districts, or in the evidence of the agriculturists consulted by the Commission.

The duration of steeping is obviously regulated partly by the nature of the water used, that is, whether the water is of a stagnant pool, or of a running stream; and partly by the condition of the plant at the reaping time, that is, whether it was in flower when the parenchyma of the bark would be tender, or whether it was in seed, when the parenchyma would be hard. Much also depends upon the temperature of the water while the steeping lasts. It is generally admitted that under-steeping leaves runners and pieces of bark adhering to the fibre, which is found "to separate unequally and to stop chiefly at the small knots which appear on the stem;" thus causing the black specks so often seen in jute. These specks are also, but with less reason, attributed to the attacks of insects in Mymensing; to insects and to the fall of hailstones on the young plants, as also to the collision of the plants themselves in a gale, in Pubna; to the clods of earth placed upon the plants when steeping, to insects and lateral branches thrown out by the plants during heavy rains, as well as to understeeping, in Rungpore; to under-steeping and attacks of insects in Goalparah; and to insufficient steeping in Backergunge. On the other hand, opinion is unanimous that over-steeping impairs the strength and flexibility of the jute fibre, and imparts to it a dull muddy colour.

The process of retting is said to take from two or three days to a month, thus:—

Furreedpore	• •	• •	• •		2 to	3	days.
. Moorshedabad	• •		• •		3 to	4	27
Bhaugulpore		• •	• •		5 day	JS.	
Maunbhoom					5 to	7	days.
Tirhoot	• •)		· ·
Bancoorah	• •				≻ 6 to	7	**
Poorce							"
Rungpore		• •	• •		6 to	10	,, .
Goalparah		• •	• •		7 or :	more	
Darjeeling					7 to	8	"
Furreedpore			•)	•	"
Singbhoom					7 to	10	,,
Bakergunge					} · · · · ·		"
Pubna	• •	• •			7 to	15	
Cachar					8 to	10	"
Satkhera sub-divi	ision. 24-	Pergunna	hs	•	`	-:	"
Maldah					8 to	10	,,
Lohardugga					8 to	14	
Dacoa				• •	8 to	15	Ŋ
Diamond Harbot	ır sub-diy	zision. 24-	Pergunn	aha i			"
Howrah		12102, 21	- or Pann	wii	10 da	ys.	
Tipperah		• •	• •	•••	, 1 .		
Baraset sub-divis	ion. 24-I		18	• • •	10 to	14	days.
Jessore	1011, 41-1	. organinar	10	• • ;	1		•
Burdwan (parts)	• •	• •	• •	• •	10 to	15	"
Dinagepore	• •	• •	• •	• •)	/ - 10 4⇔ 1	F	
Serampore sub-di	rigion	• •	• •	• • • •	Hito	10#	20 days.
	ми	• •	• •		18 to		days.
Hooghly	ion (nont	 a) 0.1 Dam	ou naba			12†	"
Baraset sub-divisi	ion (paru	8), 24-1 or	Rummin	• • • •	12 to	25	**
Noacolly	• •	• •	• •		14 3		
Nowgong	• •	• •	• •	• • •	14 day	78.	
Bograh	• •	• •	• •		144-	οΔ	1
Cooch Behar	• •	• •	• •	• • • •	14 to	20	days.
Rajshahye	• •	• •	• •	• • •	1-1	• 0	
Bhaugulpore		D	. 1	• • • (15 to	18	"
Barripore sub-div	usion, 24	- Pergunn	ans	• • •	, , , ,	20	
Burdwan (parts)	• •	• •	• •	• •	15 to	20	,,
Julpigoree			· ·		15 to	30	,,
Busseerhaut sub-	iivision,	4-Pergur	nnahs	• • -	17 to	20	"
Mymensing	• •	• •	• •]	20 day	vs.	
Hooghly			• •	ر		, ~/*	
Barripore sub-div			• •	••]			
Diamond Harbou	r, 24-Pei	rgunnah s	• •	?	20 to	25	days.
Balasoro	• •	• •	• •	ر)		

103. While the bundles are under water they are examined from time to time to test how far the rotting has progressed, and when the rotting has so far gone on that the fibres peel off readily, the bundles are taken out of the water and at once put in hand for the separation of the fibre according to the several methods prevailing in the different districts. In Singbhoom, Tirhoot, and Balasore, however, the stalks are first dried in the sun and then subjected to the next process.

104. The process of separation most generally followed is to beat or shake the stalks in the water in which it is steeped, till the glutinous substance in the bark is entirely washed away. The stalk is held indifferently either by the top or the butt end. The fibres, at first detach partially from the pulp, but by continued agitation in the water gradually disintegrate from it altogether.

Mr. Henly, formerly a merchant of Calcutta, gives the following graphic description of the process of separating the fibre in a letter to Dr. Royle:—

"The proper point being attained, the native operator, standing up to his middle in water, takes as many of the sticks in his hands as he can grasp,

and removing a small portion of the bark from the ends next the roots, and grasping them together, he strips off the whole with a little management, from end to end, without breaking either stem or fibre. Having prepared a certain quantity into this half-state, he next proceeds to wash off: this is done by taking a large handful; swinging it round his head he dashes it repeatedly against the surface of the water, drawing it through towards him, so as to wash off the impurities; then, with a dexterous throw he fans it out on the surface of the water, and carefully picks off all remaining black spots. It is now wrung out so as to remove as much water as possible, and then hung up on lines prepared on the spot, to dry in the sun."

I shall now describe the variations in this process where notable.

Pubna.—"The ryot," writes the sub-divisional officer at Serajgunge, "ascertains when maceration has taken place by occasionally trying selected plants. The process generally takes from ten to twenty days. When it is completed, the top of the stalk is broken with a mallet, and the wood snapped in the middle, when the fibre can be drawn out by the hand. One man can go through this process with about a hundred plants a day, extracting rather more than a maund of jute."

Mymensing.—"The fibres are," the Collector says, "those either picked off by hand without breaking the stem, or else they are separated by beating in the

water in much the same way as a dhobi washes clothes."

Backergunge.—After sufficient steeping the bundles "are opened. cultivator then takes as many of the plants as he can conveniently hold by the top, and agitates them in the water as much as possible. By this process the glutinous portion of the bark is washed away. The plant is then broken at its thin or top end, and the pith pushed away by a sudden jerk from the top towards the bottom. The whole is then shaken in the water, and after this is

done for some time, the fibres slip off the pith."

Furreedpore.—The plants are steeped "till fermentation is well advanced, by which time the fibre gets loosened from the woody part of the stalks. then separated by the hand, and washed in water to dislodge the gum or resin in the fibre." But this description, by the District Superintendent of Police, does not touch upon a local modification of the ordinary process which came to our knowledge during the course of our inquiries in Furreedpore. We found that when the bark has well rotted the stalks are taken out of the Each stalk is then broken at a point about half a cubit water and carried home. above the root end. The fibre is first peeled off from the broken bit of stalk which is thrown aside, and with the help of filaments thus detached from the stalk the remaining fibre is gradually drawn away.

24-Pergunnahs.—In the Baruipore sub-division "when fibres are ready for separation from the stems, a number of men are employed in separating and washing the jute, each of them being provided with a rod, with which he strikes the jute at the lower or fat end in order to have the fibres loosened from the stems. and then holding fast the loosened fibres, he gives some jerks to the bundles

and thus effects the separation."

Chittagong.—In this district the fibre is beaten off the stalk and heckled. Bogra.—Here the stalks are beaten down near the root end with a piece of

stick, and the fibre then shaken off.

Julpigorec.—"After having soaked in this manner, they" (the stalks) "are brought to the surface, bundle by bundle, and the owner, or his servant, standing in the water, seizes the bundle at the smaller end (i.e., top end of the plant) and bends double a portion of it about a foot in length; by doing this the inner stalks break, while the fibre outside, which by the action of the water has got detached from the stalks inside it, remains firm. The operator then takes the broken portion (i.e., the foot length) firmly in both hands, holding thereby the fibre and the broken portions of the stalks. Keeping this portion in his hands, he allows the bundle to float straight before him in the water, and, by a series of steady jerking, pulls at the portions he holds, he gradully separates the whole length of fibre from the stalks, the fibre coming off from the stalks in the way a stocking does from the foot, if pulled from the toe. The whole length of the fibre being thus detached, the bundle of long white stalk is thrown out on the dry Renewing the action and holding now the fibre only, and not the broken

end, the fibre is easily pulled off the remaining broken bits of stalk."

Midnapore.—"When," writes the Collector, "the bark is easily separable, and the fibre becomes soft, * * the stems are unbundled, taken up in handfuls, or as much as can be conveniently grasped in both hands, and beaten against the surface of the water, and thoroughly washed, so that they may be freed from all dirt and impurities. As each handful is thus washed, it is removed from water and left standing for an hour or so against a tree, hedge, or post, so as to allow the wet to drop off. The bundle is then broken at the top to the length of about half a cubit, and the wood being removed, a tuft of bark is set free, which is fastened to the roof of the thatch, to the door-frame, or to the branch of a tree. The women and children of the cultivator's family then set themselves about in pulling away the remaining wood from this hanging branch."

- Generally the fibre is washed in water in which the stalks had been 105. steeped. But the cleaner the water in which it is Washing. washed, and the more frequent the washings, the clearer and whiter becomes the fibre. Whenever readily accessible, running water is, therefore, always preferred for this process.
- After washing, the fibre is dried in the sun from one day, as in the Baraset sub-division of the 24-Pergunnahs, to five Drying. days, as in Julpigooree. In some parts of Hooghly, the fibre, after a day's exposure to the sun, is kept in the shade for two or three days, and then again exposed to the sun, and subsequently removed to the shade; but if the weather is wet or cloudy, the jute is exposed to dry on bamboo scaffoldings in the ryot's house. When dry, the fibre is made up into hanks and is then ready for the market.
- From the local reports and from the other sources of information consulted by the Commission, I find that the cultiva-Jute-growing classes. tion of jute is confined to no particular class or caste of the rural population; all classes of agriculturists engage in it, irrespective of caste, and whether they be Hindus or Mussulmans.

"In Pubna jute is cultivated," the Collector says, "by rather more than half of the population of the Serajgunge sub-division, and about one-tenth of that of the head-quarters sub-district." Dr. McDonell, the Managing Director of the Serajgunge Jute Company, however, writes: "The cultivation of * entirely confined to the Mussulman population, and so is its manufacture." But the result of our personal inquiries in and about Serajgunge did not bear out Dr. McDonell's statement.

This industry is said to occupy 1 in 66 out of a total population of 2,349,917 in Mymensing; about 10 per cent. of a population of 1,533,931 in Tipperah; two-thirds in the Proportion of the population engaged in cultivating jute. north and one-fourth in the south, out of 1,714,795 in Purneah; 6.29 per cent. of 689,467 in Bogra; about 10,000 out of 1,310,729 in Rajshahye; one out of ten among 1,488,556 in Hooghly; one-fifth of 532,565 in Cooch Behar; and one in ten out of 444,731 in Goalparah, where the cultiva-

tion at the foot of the hills is exclusively taken up by the Hajong and Koch tribes of hillmen.

In Backergunge it is said to engage about 1 in 60 out of a population of 2,377,433; in Howrah about one in every 60 of a population of 297,064; in Jessore about one-thirtieth out of 2,075,021; in the Baraset sub-division of the 24-Pergunnahs 5 per cent. out of a population of 279,303; and in the Alipore sub-division of the same district about one-third of a population of 630,736.

It is worthy of note, however, that the cultivators of jute are likewise the cultivators of other crops, and therefore the proportion to the total population as here shown would be misleading if accepted as an index to the exact number of men who find employment solely in the conduct of this department of industry.

Outturn of jute per beegah is very variable in the different districts, being so low as two maunds in Maldah and Singbhoom, and as high as ten maunds in Goalparah, 12 maunds in Nowgong, Bhaugulpore, and Pubna, and from 14 to 17 and even 20 maunds in Dinagepore. "The produce of the beegah," writes Dr. Roxburgh in 1808, "was 332 pounds." Mr. Gordon realized eight maunds of fibre for the first two years from the high lands, and seven regularly from the chur land. In Mymensing the Collector estimates that a beegah of land yields on an average about 43,200 plants, which may be taken to represent the produce, more or less, in other districts. The following statement exhibits at one view the yield of jute per beegah in the several districts and the prices of the fibre per maund, as given in the local reports, or ascertained by as during our local inquiries.

Statement showing the Outturn of Fibre per Beegah and the Price per Maund in 1872.

Districts.	Maunds. Price per maund.	Remarks.
•	Rs. A. Rs. A.	
Rungpore	3 to 10 1 12 to 2 12	
Rajshahye	4½ to Y	
Dinagepore	$8\frac{1}{9}$ to $12\frac{1}{9}$ or 15	
Pubna	4 to 12 1 4 to 3 0	
Moorshedabad	3 to 6	
Maldah	2 to 4	
Bogra	5 to 10	
Sylhet	5 to 6 1 8 to 2 0	•
Cachar	6	
Mymensing	8 to 9 1 8 to 2 0 per beegah.	
Furreedpore	5 0 12 to 2 0	
Backergunge	10 0 8 to 1 2	
Dacca	3 to 8 1 0 to 2 0	
Midnapore	6	
Burdwan	3 to 4 2 4 to 2 8	
Hooghly	3 to 6 or 7 1 10 to 2 15	
Howrah	4 28	
Maunbhoom	2 to $2\frac{1}{3}$ 28	
Singbhoom	$2\frac{1}{3}$ to $6\frac{1}{4}$ 2 4	
Bhaugulpore	5 to 10 2 0	
Purneah	6	
`Sonthal Pergunnahs	4 to $4\frac{1}{2}$ 2 0 to 2 8	
Tipperah	$4\frac{1}{2}$ to 5	
Jessore	5 to 7	
∄ Baraset	5 2 0 to 2 8	
Alipore	4 to 5 1 2 to 2 4	
Baraset Alipore Busseerhaut Barripore Diamond Harbour Satkheera	4 to 6	
Barripore	3 2 0 to 2 2	
Diamond Harbour	3	
Satkheera	4 to 4½	
_	•	
Cuttack	4 to 6	
Balasore	$3\frac{1}{2}$ per beegah	
Pooree	$1\frac{1}{6}$ 17 8*	
Nowgong	6 to 12 2 8 to 5 0	
Luckhimpore	3 to 4	
Julpigoree	6	
Goalparah	5 to 10 2 8 to 2 12	
Cooch Behar	3 to 4	
Darjeeling	4 to 5	

The above table gives an average of five maunds fourteen seers per beegah all round. This is, however, not a true index of the actual produce, the average being affected by the scanty produce of a large number of unfavorable districts. Taking the large jute-growing districts alone, the average would be about six maunds per beegah.

ably under different circumstances and in different places. Bearing in mind that almost universally the cultivation, except in the case of a limited number of the easier class of ryots, is carried on by the ryots themselves and their families, and hired labour and hired ploughs and cattle are very rarely called into use, it must be evident that the exact out-of-pocket expense is no criterion of the actual cost. According to the reports furnished by local officers, it rises so high as Rs. 15 in Tipperah; Rs. 15 to 16 in Luckmipore; and Rs. 17 in Chittagong, and falls gradually from about Rs. 4 in Midnapore and Howrah to Rs. 3-10 in Burdwan; Rs. 3-8 to Re. 1-15 in Singbhoom; and to only Re. 1 in Maunbhoom. Mr. Gordon, who himself has grown jute for some years, incurred an expense of Rs. 2-13 per each maund of fibre (Appendix B, No. 21, p. xv).

These figures, therefore, as also those in the following statement, showing the cost of the cultivation and the preparation of the fibre in its different processes, must be accepted with reservation, as they represent rather what would be the cost if hired labour were employed, than the cost actually incurred. The statement is also incomplete under some heads, owing to the

necessary details not having been furnished by the reporting officers.

I should point out here an arrangement whereby the necessity for employing hired labour is sometimes dispensed with in the metropolitan and eastern districts. In the jute-growing tracts the ryots frequently form themselves into associations on the principle of mutual co-operation, and without charge undertake by turns the cultivation of the field and the preparation of the fibre for each member of the guild. This practice is known as gántá in Pubna and in the metropolitan districts, and as hámúr, jogul, or hámúrúllá in Mymensing, where the "owner also sometimes lets out his land in bargá or bhág, i.e. in consideration of receiving a half share of the produce from the lessee of the land."

On these latter terms land is likewise let out in Goalparah, i.e. for a half share of the produce, which is there called ádiári.

Indeed it is generally maintained that jute would not be remunerative if the labour employed in its cultivation and preparation were to be paid for.

The most important item of out-of-pocket expense is the rent of land. This varies greatly in the different jute growing districts, rising from eight annas per beegah in some parts of the Furreedpore district to four rupees in The ordinary rate in the Baraset sub-division of the 24-Pergunnahs is Re. 1-8, and in Baruipore and other sub-divisions Rs. 2-8, which is likewise the rate current in Burdwan. In Bally, Otterparah, and other places, the rate, as above stated, is Rs. 4, and in the Serampore sub-division it is Rs. 3. In Dacca the ordinary rate is Re. 1-8; in Backergunge Rs. 2; in Mymensing from 10 annas to Re. 1; in Pubna Re. 1; and in Goalparah 15 annas. In Rungpore the rate varies in different parts from Re. 1 to Rs. 3. These rates are of course reckoned by the year, and in those places where two crops are annually raised from the same land, the amount chargeable to jute should be reduced one-half. In the same way where lands have to be left fallow for jute, the rates must be doubled. As the lands devoted to jute are included in the ryots old holdings, no special rate of rent for jute lands prevails anywhere. It is said, however, that in some parts of Hooghly the rates have been raised with reference to increased production attributable to jute.

g Weges of one man for two months Ba. 8, hire of bullock Ba. 2, and consingencies As. 14.
r Including steeping. d Including cutting and steeping, &c. e Including cutting. n Including fencing.
o Including cutting and steeping.
p Including fencing 1 rupes. Including cutting and steeping. Including steeping. Including cutting and steeping. Ditto ditto. f Including cutting and carriage. j Including manure and weeding. k Including cutting. m Including cutting and steeping. Including cutting. i Including cutting. Total cost. Rs. As. Separating and tylug up. R6. A8. P. 0 10 : 1 12 As. P. :0 :0 0 ---00 0 00 00 Reaping. Ä Rs. As. P. Rs. As. P. Rs. As. P. Carriage of manure to field. B.s. As. P. • 0 12 Manure. 0 00 0 ---00 0 009 Rent. DISTRICTS. Bhangulpore...
Purneah
Fourhal Pergumah
Tipperah
Chittagong
Noakbaly
Jesore
Monghyr Cuttack
Balagore
Pooree
Nowgong
Luokhimpore... Rajshahye Dinagepore ... Pubna Bogra
Gylbes
Cychar
Mymensing
Furredpore
Furredpore
Ducca
Burdapore
Burdwan
Hooghly
Howrah Julpigoreo Goalparah Cooch Behar Moorshedabad Singhboom Darjeeling Maldah

Statement showing the cost, per beegah, of cultivating Jute in the several Districts of Bengal, Assam, and Orissa.

111. The jute plant is utilized in this country in many ways besides being used in the manufacture of its fibre. The plant is said to have "the remarkable effect of killing and eradicating a bulbous kind of grass known as " " Bhadulia, " " which spreads very rapidly and chokes the rice crop. The ryots " " cultivate jute on the land where Bhadulia has appeared. " " The jute invariably kills the weed, and a little manure is then used to renovate the ground for the next crop of rice, which is pretty sure to be successful."

112. In the months of July and August large basketsful of jute leaves and tops of jute plants of both the green and the reddish varieties may every morning be seen carried on the heads of men and women from the suburbs to the

Calcutta markets, where they are sold at pretty high prices for use as a pot-herb. In fact the Pátsák is a dainty of the season, and almost every native house has a dish made of it. The bitter variety is used in the form of a vegetable soup (sukta), which is esteemed as a stomachic. The bland, or sweet variety, is boiled, fried, or curried in different ways. Nor are the use of the leaves and the trade in it confined to Calcutta; they are used and sold in almost every part of Bengal, and in some places, for instance in Bancoorah and Beerbhoom, the plant is cultivated exclusively for sale as a pot-herb. The leaves of both the Corchorus capsularis and the C. olitorius are so used.

"In the sub-division of Cutwa in Burdwan," writes the sub-divisional officer, "there is a large bheel close to the village of Sreekhund, and in the marshy bed of this bheel jute is cultivated during the months of Fálguna and Chaitra. The leaves of this species of jute are very extensively used as pot-herb. The plants are cropped during the months of Vaishákha and Jaishtha, and so long as they are not destroyed by the rains setting in. This year, as the rainfall has been scanty, the leaves are being cropped even now. In ordinary years there are ten to twelve croppings, and the average price at which the whole produce of

the bheel is sold is from Rs. 12 to Rs. 16."

The plant grown here is the red variety of the *Corchorus capsularis*, and Baboo Joykissen Mookerjee informs me that the cultivation of it extends over some 500 becgahs in the Hooghly district, the leaves selling at Rs. 20 to Rs. 28 for the produce of the beegah.

113. The leaves of both the green and the red jute plant hold also, as already stated (ante p. 13), an important place in the native pharmacopæia. An infusion of the dried leaves is used as a tonic bitter, and I think there is scarcely a Hindu house in which the nálitá, the name under which these dried leaves are known, is not to be found.

No. 6, p. v), says:—"The leaf of the jute plant manures the land;" and Mr. Porter, the Joint-Magistrate in charge of the Baraset sub-division of the 24-Pergunnahs, writes:—"Some say that the leaves of the plants which fall off and rot, serve as a manure and enrich the soil." In Nowgong the dried leaves, branches, and stems of the old plants that rot on the ground, are considered by the people as the best manure; but I have not heard of the leaves or any other part of the plant being collected or preserved for manure.

115. In an economic point of view, the jute reed, when stripped of the bark, is as useful as the leaves, though in a different way. It serves for a cheap fuel to the ryot; it supplies sticks for the country-made matches known as deásalái; and it is employed as props and fencing for betel-leaf gardens. It takes a part also in the amusements of the people, being used as torches by the Hindus on the occasion of the Lucki Poojah festival. For this purpose large quantities of the reed are sold in small bundles in the month of October.

Price of reeds.

For fuel, fencing, and other requirements, the reed is sold at a cheap price, averaging about one rupee for the produce of a beegah; but at the time of the Kali Poojah it sells

at the rate of one pice for a small bundle of twenty to thirty sticks.

brings in a good price from the manufacturers of the country matches.

117. The root of the jute plant is also valuable, and the Bally Paper Mills use yearly about 10,000 maunds of it in the manu-Uses of jute roots. facture of paper. It is also utilized as a manure

in Julpigoree.

Baboo Ramsunker Sen, the Statistical Deputy Collector of Jessore, says that "an oil for burning is extracted from the Uses of jute seeds. jute seed," and the refuse cake must, it is presumed, prove useful in fattening cattle, pigs and other live-stock. The Gardener's Magazine, quoted in the Agricultural Gazette of India, however, states that "the seed is of little or no value, yielding too little oil to make it worth while to crush, and it is not very nutritious for stock."

Having described the mode of cultivation of the jute plant and the processes followed in preparing its fibre, as well as Effects of jute cultivation on the soils, and the degree to which soils are the uses to which the plant is put, except its fibre, exhausted by it. I come now to the question—whether or not this

cultivation is injurious to the soil.

120. A strong majority of the district officers are decidedly of opinion that the cultivation of jute on the same land for a Opinions in favour of exhaustion. succession of years has the effect of exhausting the fertility of the soil.

"Jute," says the Collector of Bogra, "tends to the decrease of other

crops, destroying the fertility of the land in three or four years."

Mr. Nolan, the sub-divisional officer at Scrajgunge, observes: "No pulses can be sown in the cold season on jute land, and even as the sole crop it exhausts the soil in two years."

So very injurious is the influence of this crop sometimes held to be, that the Collector of Rungpore reports that "jute is never grown for two years running on the same land;" and in pergunnahs Bahirbund and Bhiturbund it

is grown" every second or third year by rotation."

The Magistrate of Jessore makes the following estimate of the extent of injury annually done to the soil by the cultivation of jute:—"The outturn is good in the first year, in the second it is about 1th less, while in the third it dwindles considerably."

Following up the same opinion, the sub-divisional officer at Barripore, in the 24-Pergunnahs, remarks: "jute impoverishes the soil. The soil is greatly exhausted by it, inasmuch as no land will bear a second or third crop unless it is carefully manured at each instance. Jute plant draws up the humidity of the soil, and destroys in a manner its productive quality of bearing other crops."

121. To this view, which is strongly supported by a large body of agriculturists, are opposed a small minority of District Opinions against exhaustion.

Officers. For example: "Soil," writes the Collector of Dinagepore, "is rather improved than otherwise by jute cultivation, because it gets manured, which otherwise it would not be to such an extent."

According to the District Officer of Cooch Behar, with whose opinion the District Officer at Cachar coincides, "jute cultivation does not affect the soil injuriously;" but he adds—"manure is used to renovate the land."

"Jute," according to the local report from Furreedpore, "is not considered

as exhausting the fertility of the soil, as shortly after its removal from the ground the field is again ploughed up and sown with one of the cold weather crops in this district. No manure is employed to renovate the land, the silt annually brought and deposited by the floods of the Ganges and Gorai rivers possessing abundantly fertilizing properties."

"Jute cultivation," Baboo Joykissen Moookerjee writes, "is said to

improve the land for the cultivation of neally paddy and pulses."

"People say," writes the Collector of Purneah, "that jute impoverishes the soil, but a finer crop of mustard is often got from a field on which jute has grown than one on which other crops have grown. It does not exhaust the soil." * * "Being cut green before it is allowed

to seed, it does not exhaust the soil."

Much in the same strain the Sub-Divisional Officer at Baraset, in the 24-Pergunnahs, observes—"It is a vexed question whether jute is an exhausting crop or not. Some say that jute leaves falling off and rotting serve as manure." Mr. Bowser says, "Tobacco, raddishes, peas, and other leguminous

crops, follow on lands where jute has been grown."

Mr. George, of Dacca, who has had very large experience of jute, says: "Jute cultivation does not, it appears, affect the soil to such a degree as sugarcane, for the same lands are used every year after removing it where sugarcane lands are used on alternate years, allowing one year to recover itself by letting it lie fallow, or by giving another crop. Another way of renovating the jute lands besides manuring them is by selecting such pieces of land as are likely to be submerged by the inundations in July and August, whereby the lands receive deposits of fertilising matter and recover from the exhausting effect."

But the most startling statement of all is made by the District Officer at Julpigoree. He says: "So far from the jute cultivation exhausting the soil, the longer it is sown on the same bit of land the more productive is the crop, and no jute sown on new lands come up to the jute grown year after year on the

same spot."

122. It is a well-known law of nature that all plants are in one sense injurious to the soil, inasmuch as they cannot grow without abstracting some of its constituents, and thereby rendering it poorer than it originally was;

thereby rendering it poorer than it originally was; and the jute plant forms no exception. After a careful and mature consideration of the local reports and of the evidence of the large body of agriculturists and experienced persons whom the Commission have personally consulted in the several jute-growing districts, I have no hesitation in saying that jute does more: generally speaking it exhausts and impoverishes the soil to a much greater extent than other crops. In the absence of a sufficient series of chemical analyses of jute soils under different conditions, before and after the raising of a jute crop, I am unable to say what are the particular constituents of the soil which it abstracts; but that it does abstract some of its constituents very largely is evident, from the necessity which agriculturists find themselves under of re-invigorating their fields with manure and fresh earth collected from drains and other places where vegetable and animal decomposition have deposited a rich layer of mould, or leaving them fallow for a time, or by a rotation of crops, the crops selected being such as are known by experience not to require the same soil as the jute. In the case of churs, bheels, and low lands, this artificial re-invigoration is not required, as the silt deposited by the overflow of rivers, the washings of the high lands brought down by rain water and deposited on low ground, and the enormous mass of vegetation which rot in bheels, effect by natural processes what the agriculturist on high lands has to accomplish by his own labour; but the necessity of supplying to the soil those constituents which the jute plant abstracts exists everywhere. Nor are the adverse opinions quoted above really opposed to this deduction; for it may be that in those places where the soil appears not to be exhausted, the rainfall and drainage are such as to obviate the necessity of artificial manure; or the soil there may be so rich in those particular constituents which promote the growth of the jute plant, that a succession of crops does not appreciably exhaust it; nay it may adapt the soil for the better growth of other crops. Positive answers on these questions must, however, await extensive chemical analyses and experiments of which I have not the benefit now.

123. As to the degree to which soil is exhausted by the cultivation of jute,

I am disposed to concur with the Collector of
Jessore that ordinarily even virgin land which has
been broken up for a first crop of jute will, in the second year, lose about 25
per cent. of its productive power; and that even though afterwards heavily
manured, its yield in the third year will be about one-half of the first year's

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crop. It is from this conviction of the exhausting power of jute on soil that this crop is so frequently shifted from field to field; and I can testify from my own observation and inquiries that, except in the case of churs flooded annually, and very low lands which derive similar benefits by drainage, it is in a very few instances only that jute is grown on the same land for more than three years consecutively.

124. The exhaustion above referred to, where not remedied by nature, is removed in three different ways: 1st, by the application of manures; 2nd, by rotation of crops; and

3rd, by leaving the land fallow for a time.

125. The manures ordinarily used are—in Dacca, cowdung and weeds from

bheels; ashes in Dinagepore; ashes, house-sweepings,
oil-cake, and the ordure of cattle stalled in the
fields in Rungpore; house-sweepings and oil-cake in Howrah; the cinders of
the burnt roots of old jute plants in Julpigoori; and the stubble of the rice
crops in Noakhally.

In Hooghly all lands for jute are not manured. But where oil-cake has been laid down for the potato crops, cowdung suffices for jute. According to soils, old mud from tanks, ponds and ditches, or cowdung, is used: oil-cake is put into the land only when it is of a very poor description. Sometimes the ryots pen in their fields sheep when being brought down for the Calcutta market, and the sheep's dung and urine have been found to act as an efficient manure.

In the 24-Pergunnahs cowdung, ashes, house-refuse, and fresh earth from

tanks, ponds, and ditches, are put on land to be sown with jute.

Land requires to be manured with cowdung after two or three years in Goalparah. Here the ryot sometimes puts up his cowshed on the field on which he wishes to grow jute in the following year, shifting it at the time of cultivation to some other field next to be grown with jute, and strewing the cowdung and ashes over the land by way of manure. Indeed in most places where manure is largely used, the fields for the cultivation of jute are generally selected with reference to their nearness to the ryot's cowshed.

No manure is used in Moorshedabad, Purneah, Bhaugulpore, Darjeeling, Serajgunge, Backergunge, and Furreedpore, except in the Soopool sub-division of Bhaugulpore, where cowdung and house-refuse are largely employed. In Darjeeling the soil is mostly newly reclaimed, and needs no invigoration by artificial means, and in Backergunge and Furreedpore the periodical inunda-

tions render manuring unnecessary.

Mr. Constantine, of Soobuncolly, in Mymensing, affirms positively from personal experience, and Mr. Porter, the Joint-Magistrate in charge of the Baraset sub-division of the 24-Pergunnahs, states on hearsay authority, that the leaves of the jute plant falling off and rotting on the ground serve as a manure. In Nowgong also the dried leaves, branches, and stems of the old plants that rot on the ground are considered by the people as "the best manure." But in none of these places any manure is employed by the cultivators.

126. The most generally adopted method of renovating jute land is by a rotation of crops. It is practised in almost every district where jute is extensively grown, and is well understood by cultivators, though there are no rules on the subject universally current in the country, each cultivator following whatever method appears most convenient to him. Different crops are sown in different seasons of the same year and for two or three years, or on alternate years, according to the caprice or the necessities of the cultivators, and then the jute is dropped for a year or two, when it will no longer grow to advantage.

The crops selected for rotation are, mustard or rice in Purneah; mustard, pulses, or rice in Rungpore; early paddy annually, or cereals every three years, in Rajshhaye; pulses in Moorshedabad; rice and mustard in Maldah; janera, arhar, and mustard in the Sonthal Pergunnahs; mustard in Goalparah; tobacco, rice, and mustard in Cooch Behar; tobacco or mustard in Jessore; mustard or onions in Tipperah; chillies, raddish, and rice in Noakhally; mushari, khesari,

mig, and similar crops in Backergunge; cold weather crops, such as kallái, mustard, linseed, sessamum, mason, peas, brinjal, &c., in Furreedpore and Dacca.

The system of rotation observed in the following districts may be more

appropriately stated in the terms of the local reports.

Sylhet.—"After the naliá plants are cut down, the lands are left fallow for three or four months, and then when the lands are fertile enough, mustard, onions, brinjals, chillies or mulá crops are cultivated by rotation; but when the lands are poor and have become very much exhausted, they are left fallow for one or two years."

Pubna.—" Til and dhan are cultivated in rotation of jute. Jute is usually grown on the same land for two successive years, and it is then given up for other crops. Land in this district is too valuable to be let to recover its

strength by lying fallow as in Rungpore and Bogra."

Dinagepore.—"The rotation of crops with jute is that where it is cultivated on Polee lands, mustard usually succeeds as cold weather crop, and in Khiar lands, Jeth or Bhadooree rice are cultivated alternately. In some instances if

the jute crop is cut early enough, hemunto rice is put into the land."

Bogra.—"The jute is not cultivated on the same piece of land for more than two or at the most three years in succession. Mustard is frequently sown on the land after the jute crops are cut. The land is then sown with rice and other seeds for two or three years, when it regains its fertility and can then be sown with jute."

Midnapore.—The rotation of crops practised in the Jungle Mehals is as

follows:

"Jute, then (1) some sort of inferior grains, such as kodo, kang, &c.; or (2) khomya (a kind of cotton); or (3) sugarcane, and then jute again. In some other parts of the district—jute, then (1) biri, or some other kind of pulse; then (2) aus paddy or sugarcane, and jute again. But rotation of crops is not very generally

practised in regard to the cultivation of jute in this district."

Hooghly.—"An inferior description of aus paddy, variously called the kártiká, néállí, &c., as well as the real aus paddy and pulses, are usually rotated with jute cultivation. The pulses form a second crop in the same year that the jute is sown; but when aus is alternated with jute it takes its place. It is in fact the aus paddy land on which jute is grown; owing to the difference of the two seasons respectively necessary for the jute crop and pulses, both the crops are grown on the same land within the year. In years in which jute is not cultivated on a certain land, it is cultivated with the aus paddy, and it usually depends on the nature of the demand and the price in the market for the ryots to choose whether to cultivate jute or paddy in a certain year." In some places indigo also is rotated with jute.

Howrah.—"One year aus paddy and next jute; though this rotation even is not always regularly carried out. Jute can be sown year after year on chur lands which are annually renewed." "Mustard, kallái, &c., are grown

on jute lands after the jute has been cut."

Burdwan.—" After the jute has been cut, winter cereals, such as kallái, músar, mustard, peas, kápás, &c., are sown, but they cannot be said to be in rotation with jute. On the same land this plant is not grown for more than a year, as it exhausts the productive power of the soil. Aus, or sugarcane, which really takes the place of fallow, is sown in the next year in rotation."

Rotation is rarely resorted to in Mymensing; while in Julpigori, Darjeeling, in the Soopool sub-division of Bhaugulpore, and in the Busirhat sub-division

of the 24 Pergunnahs, it is not practised at all.

127. The last method of renovation is by fallows. Here, again, there is no rule or system of universal currency, it being resorted to whenever found expedient. In Mymensing jute lands are left fallow every third or fourth year; in parts of 24-Pergunnahs every second or third year; in Moorshedabad every fourth year; in Bhaugulpore every third year; in Sylhet occasionally; in Maunbhoom and Singbhoom two seasons fallow after a year of jute; in Nowgong every alternate year; and in Nuddea every second year in certain portions, and every second

or third year for two years after two or three jute seasons. It is perhaps unnecessary to add that the method of renovation by leaving the land fallow is but a counterpart of the natural process of renovation by inundations. Súna lands, which alone are subjected to this process, are too high to be reached by inundations, and have to be renovated by the washings of higher lands brought on them by the periodical rains, by the rotting of vegetable matter on them, and by certain mysterious chemical decomposition and disintegration which the soil undergoes by the sun-light and rain-water in course of time. These processes take place naturally everywhere; but on high lands they cannot reinvigorate the soil sufficiently for particular crops in less than two or three years, according to circumstances and the nature of the crops intended for them.

Among the various natural causes which are injurious to the jute crop, drought must be reckoned as the most important. Causes of injury to jute plants. The plants require a good supply of rain-water to wash and invigorate the leaves, and the land must be all along humid. If, owing to want of rain these conditions be not fulfilled, they must suffer in various ways. Generally their growth is checked, they become stunted, blight of some kind. or other affects them, and the yield of fibre is reduced. If the drought is excessive, the plants sicken and die. On the other hand, excessive rain or inundation, submerging the plants, always kills them. Grown up plants do not, however, suffer if partially submerged to the extent of two or three feet of the There is a tendency in such cases, however, of the submerged portion of the stem throwing out acreal roots and suckers which make the fibre "rooty." The plants are subject to other accidents of a serious character. We were told during our visit to the central and eastern districts that entire fields of jute had been destroyed by a kind of hairy caterpillar called shúápocká, which generally comes in seasons of drought and eats up the leaves and barks of the jute plants. The insect is known by different names in different districts; but

129. Another equally destructive insect is the cricket, called differently üichingrá, ütrungá, or ürchongá, which burrows in the ground and either uproots the seedlings altogether, or destroys them by cutting away the roots.

the names by which it is most commonly described are bichá and ainchá.

130. In the Rungpore district (Appendix B, No. 33, p. xxiv), under the name of chuttee, we find mentioned "a blight which injures the plants during excessive rain when neck-high, drying up the leaves and thinning the stalk." I see also spoken of, in the 24-Pergunnahs, a "kind of blight which is prejudicial to the growth of jute. In the months of Ashádha and Sravana, when the plants are breast-high, the leaves get crumpled up and the growth of the plants is checked."

131. During protracted droughts in Mymensing, the plants from want of moisture are visited by a blight called káchúrí, when the leaves become warped and twisted, whereby the growth of the plant is at once stopped.

132. In cloudy weather, unattended with rain, destructive insects and caterpillars of various kinds are known to be produced; but we have not been able to

collect any of these vermins.

Alleged deterioration of jute and myself, before we started upon our tour in the jute districts, had inclined us at first to believe that jute had of late deteriorated in quality; accordingly, to ascertain the real state of the case, we not only invited the opinions of the district officers on it, but also made it a point of special inquiry at the places we visited.

Opinions against the allegation. ably modified. The majority of the district officers and the European traders and manufacturers whom we consulted are, with one or two exceptions, almost unanimously of opinion that the fibre has not of late deteriorated, and that the ryots have not been reckless in the selection of the land on which it is cultivated.

Ducca.—The Collector does not think that land is selected recklessly, "nor

is of opinion that the jute plant is deteriorating."

Mymensing.—The Collector does not know how the quality of the jute is deteriorating, "nor that it can be said that the cultivators have been reckless in selecting the land on which to grow the plant."

Dinagepore.—"Jute is not deteriorating from the present system of cultivation," and "I," says the Collector, "do not consider that the cultivators

have been reckless in selecting the land on which to grow jute."

Bogra.—"It does not appear that jute is deteriorating under the present system of cultivation, and cultivators are careful in the selection of their land."

Rajshahye.—" The quality of jute has not deteriorated," and "reckless and

indiscriminate sowing is not resorted to."

Pubna.—"The quality of the plants," writes the Collector, "is not believed to be deteriorating from the present system of cultivation, and its fall in prices is to be attributed to the extension of cultivation, and consequently to the large outturn of jute, rather than to any deterioration in the quality of the fibre."

Tipperah.—"There has been no change one way or the other in the quality of the fibre in this district." "I do not consider," adds the Collector, "that land has been recklessly selected. Native agriculturists are very long-headed in such matters."

Julpigoree.—The Deputy Commissioner, who terms Julpigoree "essentially a jute-growing district," says "no" to the question whether jute has deteriorated, and adds, "the cultivators seem thoroughly to understand what they are about."

' Hocyhly.—"The ryots are not reckless in selecting jute lands," and the Collector does not think "that the quality of jute is deteriorating of late."

24-Pergumahs.—In the Baraset and Sudder sub-divisions "jute does not seem to have been deteriorating in quality."

Purneah.—The Collector of this district is also of the same opinion.

Dr. McDonnell, Managing Director of the Serajgunge Jute Mills, observes: "I do not admit that the Serajgunge jute is inferior to what it was three or four years ago. I am inclined to think (and I see a great deal of jute every day in the Serajgunge bazar) that the quality has rather improved than otherwise. I hold this opinion in opposition to the Calcutta price-currents. But I would urge that goods in a falling market are often depreciated and found fault with; while were the market brisk and the demand good, we should hear no remark as to quality."

Mr. Gordon, Superintendent of the Gouripore Mills, in his statement says: "I think the jute is not as a rule deteriorating in quality." (Appendix B, No. 21, p. xv). Mr. Thornton states: "The quality has not been gradually deteriorating." (Appendix B, No. 40, p. xxix). Mr. George observes: "I do not find that jute has deteriorated; indeed this year I think it is if anything better, but it varies in different districts." (Appendix B, No. 42, p. xxx.)

135. On the other side of the question I shall reproduce the opinions of, Opinions in favour of the allegation.

Opinions in favour of the allegation.

or refer to, the authorities most entitled to consideration.

Sylhet.—In this district, where the cultivation is almost nominal, the present system is stated to have caused a deterioration in the quality of jute; but the defects of system to which this deterioration is due are not instanced.

Rungpore.—The only officer of a large jute district who holds that jute has deteriorated is the Collector of Rungpore. Mr. Glazier writes: "It is generally considered that the quality is deteriorating. Most of the land in which it is grown is too poor to produce plants strong enough to stand the steeping; so that the fibre becomes rotten before it is sufficiently steeped." But the Superintendent of Maháráni Sarnamayí's estates in the same district says that the "cultivators are not reckless in selecting the land on which to grow the plants."

Furrecdpore.—The Collector of this district, where also jute is largely grown, makes a guarded statement without committing himself to any decided

opinion. He says: "The fibre of the jute and other plants is reported to deteriorate in consequence of the rough process adopted to separate it from

the woody matter."

Mr. David and Baboo Modun Muhun Bysack, of Dacca, Mr. Constantine of Soobuncolly in Mymensing, Baboos Khetter Mohun Bose and Nolit Mohun Das of Calcutta, whose opinions on this special subject carry weight with them, as well as almost all the *áratdárs* and traders with whom we have conferred, also hold that the quality of jute has deteriorated of late.

136. Without siding with either party, I believe I am justified in inferring that in proportion to the increase of the cultivation the quantity of medium and inferior jute has been greater season after season. When the demand is great and the prices high, as they have been for some time, people find a ready market for whatever they can produce, and naturally become careless; whereas a glutted market leads to the rejection of inferior articles, and consequently cultivators are driven to the necessity of care in improving the quality of their goods. This was well illustrated last year, when, with a glutted market, the demand was much less than the supply, and the demand which did exist was chiefly for fibre of the best quality, and good deal of it was sold at a cheap rate.

137. Like the hemp-growing Russian peasant of olden times, the ryot of Bengal raises his rice and other crops with his own hands, aided only by the members of his family,

and it is rarely that even an agriculturist in easy circumstances employs hired labour. When his own family is underhanded, he has recourse to the system of mutual co-operation which I have already described as prevailing in some districts (ante p. 37), and under it the cultivation is carried on without any actual outlay of money for labour. By this means he can grow a crop with little expense; and even rice, the staple produce of the country, will not be remuinerative to him unless so grown. As long, therefore, as the ryot keeps within limits, that is within the working power of himself and his family, so long will the produce continue to be fair. When, however, he oversteps those limits and attempts to do more than he is personally able, without incurring the necessary expense, the cultivation is not duly cared for, and some portion at least of the produce necessarily becomes of inferior quality.

138. Here and there some intelligent ryots may be found who try to avoid such mistakes. At Goberdhone (in Rungpore) a few ryots said to me when I was there: "We do not, as a rule, grow jute on more than two or three dones, but we produce good fibre. If we extend our fields, we will not be able to pay that attention to the cultivation of the plant and the preparation of the fibre so absolutely

required for the production of a good quality of jute."

The cultivator is, as stated in the local reports, generally careful in selecting the land whereon to grow jute; but a careful selection of land is not alone sufficient to secure a supply of good fibre. It is on the timely harvesting of the crop, the sufficient steeping of the stalks, and the careful dressing of the fibre, that the superior quality of the produce in a great measure depends; but it is almost equally necessary that the rainfall while the crop is on the ground should not only be sufficient, but also seasonable.

Causes of inferior jute of 1871-72. and forgetting his habitual caution he extended the area of his cultivation beyond the limits of his working power. Just at the time, too, when the jute had to be harvested and steeped, he was busy both in reaping the crops of aus rice and kaon, as well as in preparing to sow the aman paddy. His attention being thus divided, the jute crop was neglected; for even the ryot who could afford to pay found it rather difficult to procure hired labour, especially in a season when not only is labour more constantly and largely in requisition, but when it is also to a great extent crippled by the sickness then so widely prevalent. The result was a crop of inferior quality.

- 140. It has also been said to us by a majority of the jute-growers that at the sowing season the fareahs or paikars some times bargain anticipatively for the produce of the crop without making any stipulations as to the quality of the fibre, so long as it is delivered to them at an average price previously agreed upon. Thus these men in a manner offer a premium on the growth of inferior produce by encouraging the ryot to be less careful as to the quality than to the quantity of the fibre he brings to the market. Carelessness in tying the jute into bundles or drums before it is perfectly dry also causes much deterioration.
- There are, however, many causes for the deterioration of jute, 141. irrespective of care on the part of cultivators. Even Natural causes of deterioration. perfectly helpless if the rainfall happened to be insufficient or unseasonable. Last year, as already observed, there was precisely this last difficulty to contend According to the Meteorological Reporter for Bengal, the rains in most parts of these provinces were unusually light in 1872. Lower Bengal suffered from a deficiency of rain in every month of the year, and with an extended area of cultivation a large portion of the fibre necessarily turned out to be of medium and inferior quality. Again excessive rain, by driving the agriculturist to reap his crop before it is mature, leads to much deterioration. The plants on low lands being in imminent danger of being drowned, the alternative is either forsaking the entire crop, or by cutting early to secure a crop of inferior quality; self-interest allows no 100m for hesitation as to which branch of the alternative to accept. In short, with a large area of cultivation over a very wide tract of country, on lands of very dissimilar character, and under very different circumstances, the influx of a large quantity of inferior jute into the market cannot be prevented, and its measure must increase pari passu with the extension of the enterprise. I must add, however, that there is nothing to show that there has been in se any deterioration in the character of the jute plant, or any universal falling off in the quality of its fibre. There is much truth in what Dr. McDonell says of purchasers becoming hard to please in a glutted market to explain the reason of the complaint lately raised in Calcutta on the subject.
- 142. I now proceed to make a few remarks on the present system of culsusgestions for improvements in the culture and preparation of jute. tivating and preparing jute, and to indicate in what directions it is susceptible of improvement.

Most of the district officers and private gentlemen who have written on the subject have suggested no improvements under either head of the subject, being apparently disposed to leave the existing state of things undisturbed. The Bengal peasantry, fondly attached to old customs and traditions, are averse to any innovation on their customary and traditional modes of cultivation and manufacture; and it is needless therefore to say that the Commission have received no help from them, though they would of all others most largely benefit by improvement.

143. The directions in which improvements may be easily and most beneficially effected are—(1) selection of seed, (2) rotation of crops and observance of fallows, and (3) care and attention in the season of reaping, and in the subsequent manipulation of the fibre.

144. It is, I believe, sufficiently well known to the peasantry that soil intended for the jute crop must be well manured, ploughed, cleaned, and pulverized before it is sown; but I do not think it is known that seed from well-grown plants produce a much better crop than those from weak, ill-grown, and unhealthy plants, and that a change of seeds, and seeds brought from distant fields, are likely to lead to improvement in the plant. Dr. J. Fleming, the then Inspector of Drugs, in a letter to the Secretary to the Board of Trade, in 1808, speaking of the sunn fibre, observes:—"At Salsette, where it would appear sunn of the best quality in Hindustan is produced, the ryots never sow their own seeds, but procure every year a fresh supply for that purpose from the Mahratta

country or from the Malabar Coast." And what is true of sunn is equally so as regards jute. A careful selection of well-grown plants for seed and the use of the best seed alone for cultivation might, I think, be inculcated as a first step in advance of the present system; and it might be pointed out to agriculturists that an exchange of seeds between different districts might also be tried, with the certainty of improvement in the quality of the fibre. On this subject Dr. McDonell, the Managing Director of the Serajgunge Jute Company, writes:—"No doubt a supply of good seed would be a desideratum, and some means might be devised to this end, for it presents no great difficulty to establish depôts for the reception and disposal of the best jute seed, as I believe is done for cotton."

Moreover, as jute is conceded on almost all hands to be an exhausting crop, 'no high lands should be planted with it oftener than once in two or even three years. That the productive powers of jute land have been generally over-taxed, is evident from the fact that of late more inferior fibre has been brought to the market than formerly, much of which must have been grown on exhausted soil. is considerable difficulty, however, in carrying out a system of regular fallows The ryot cannot always afford to pay rent for fallow lands, at stated periods. and the prospect of recouping two or three years' rent by the sale of one year's good crop is subject to so many contingencies, natural, commercial, and domestic, that few like to accept it. There is besides at present a great demand for arable land for a variety of crops, and few can afford to forego present opportunity for a future contingency. In the case of many ryots, a failure of crops on their best lands after a two years' fallow would be tantamount to death by starvation, even if they could live during the fallow period on the mercy of the mahajun.

146. I observe that much fault has been found with the present method of harvesting the jute crop. In the early days of sunn cultivation, it seems to have been the practice to reap the plants when mature, or approaching maturity. In a despatch of the Secret Committee of the Court of Directors to the Government of India, dated 4th December 1800, I find it stated:—"When the seed is nearly ripe the plant must be pulled up." Mr. Frushard, writing to the late Board of Trade, in July 1802, says:—"The French professors particularly warn us against gathering of the plant before it be quite ripe when intended for cordage; for, say they, it never lasts so long as that made from plant that hath been suffered to attain to perfect maturity." Touching this

point Dr. Roxburgh, in a memorandum addressed, in October 1808, to the

then Chief Secretary to the Government, writes:-

"It was pulled on the 23rd of August, when the seed was ripe, at which period the fibre is reckoned strongest, though of harsher texture than when in flower." To the same effect is a report by the Sub-export Warehouse-keeper, dated the 3rd October 1808, to the Secretary to the Board of Trade, where Mr. Larkins observes: "I have invariably found pucka sunn, produced from a plant which has not been cut until the seed has ripened upon it, to possess greater strength of fibre than the phoof or flower sunn." Dr. Fleming, in the letter already quoted from above, observes: "Little or no loss will be incurred for the pucka sunn as it is called, or that which is pulled after the seed has come to maturity, is of equal value with phool sunn, or that which is gathered when the plant is in blossom. The former is coarser than the latter, but stronger and fitter for cordage, though not so well suited for canvas."

The above remarks made upon the culture of sunn (Crotalaria juncea) are equally and in every way applicable to the cultivation of jute. Dr. Fleming, writing upon the subject in 1801, in the form of questions and answers, asks: "How is the pat prepared?" and answers, "exactly in the same manner as the sunn. The mode of preparing it is liable to the same objections as that used by the natives for making the sunn, and the improvements recommended in regard to the latter would be found equally useful for this plant."

147. Inferring from analogy, I should say that jute for cordage ought to Distinctions to be observed with reference to fibre required for cordage be cut in seed, but for other purposes, such as the manufacture of gunny, carpet, &c., it should be reaped in flower. The latter description of fibre is not weak, while it is soft to the feel, and silky in appearance. Mr. Gordon, the Superintendent of the Gouripore Mills, cut his jute in flower, and the same practice is followed by a large body of jute-growers, as will be seen from their statements appended to this report.

The same gentleman, in a paper which he has written on the cultivation of jute, says: "And too much importance cannot be placed upon the facts that the cutting of the jute at the proper time in a great measure determines its quality. If cut when the plant has just reached its full growth and the flowers begin to appear, the fibre will be strong, soft, and free from hard root, which is so objectionable; on the other hand, if allowed to stand until decay has set in, the fibre will be hard and of a brown colour, and no amount of care in the steeping will remedy this. No proper tanks are provided for steeping in; any small hole or ditch by the road side is used for a time; these do well enough, but quantity after quantity is steeped in the same water, it gets so dirty that fibre steeped in it becomes discoloured and weak."

The question next arises whether the stalks should be steeped in water at once, or after a previous stacking. Dr. Stalking before steeping. Buchanan, after referring to the extensive manufacture of a very coarse but strong sack-cloth from the fibre of the Crotalaria juncea at Bangalore, remarks: "The plants after being cut down are spread out to the sun and dried." Dr. Roxburgh, in a letter to Government, dated the 20th April, 1808, describes the results of certain experiments made by him in these terms: "On the 22nd February last, when the plants were vigorous and in full blossom, twenty pretty large bundles were pulled and managed as follows, with the view of ascertaining whether during the dry season drying the plant previous to steeping it, as formerly recommended to this Government by Dr. Fleming, adds strength to the clear fibre, which the accompanying samples tend to confirm, and it is chiefly with this view that I have taken the liberty of troubling Government with them." Dr. Fleming, in his paper noticed before, remarks: "Instead of putting the plants into water immediately after they are pulled up, they should first dry them in the sun for two days, after which they should steep them."

This practice of drying the stalks for two days before steeping is, as the statements of several agriculturists show, very common in the 24-Pergunnahs, Hooghly, Burdwan, parts of Rungpore, and in other places in Bengal. It might, I think, with advantage be more generally followed, as calculated to conduce to the strength of the fibre.

The Statistical Deputy Collector of Jessore suggests that, after 149. cutting, the stalks "should be passed through a Jute mill. mill formed like the native kurki, used in pressing the juice of the sugarcane, and after they had been broken up, the loosened fibre should be steeped in brick-made tanks like the indigo vats, specially made for that purpose, and should be bleached as soon as the bark comes off easily and separates itself from the stalks. This would most probably render the fibre stronger." There are, however, scrious disadvantages to this process being adopted by the ryots. In the first place the injury to the stalks will entail loss; secondly, to hire the labour of pressing the stalks under rollers, and the cost and trouble of separating the broken particles of the stalks from the fibre, which will in course of the process remain adhering to it, thereby making it woody, will add considerably to the cost of production; and it is doubtful if the improved quality of the fibre and the consequent enhancement of its price will cover the outlay. Mr. David, of Dacca, in a letter to the Commissioner of Dacca, anent a system of model jute farm, has struck upon a similar idea, when suggesting that the plants should be steeped in indigo vats. But he, however, has not shown that the cost of frequent pumping of large quantities of water to fill up the vats, and the interest on the first outlay for building extensive series of vats, can be covered by the expected improvement in the quality of the fibre. What is quite unfelt in a high-priced article like indigo, would be a serious drawback on a low-priced staple like jute.

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Frushard, writing in 1801, remarks, that "the plants will be sooner steeped in standing water than in a running stream, and sooner in stagnant, putrifing water than in one that is clear; but that the clear standing water is nevertheless to be preferred." The jute-growers in Bengal, as will be seen from their statements, are already guided by these considerations in their choice of water, and whenever possible they always steep the jute stalks either in the still gulfs or pools of a river or in beel water. The difficulties to be overcome under

this head have already been referred to in paragraph 141.

The operation of separating the fibre is effected by the majority of ryots by shakes and jerks in the water, but Separation of the fibre. both Dr. Fleming and Dr. Roxburgh are against The former gentleman says :- "I am unwilling to give up altogether the mode of peeling by the hand, as I find it strongly recommended in a letter from the Lords of the Privy Council to the Court of Directors, dated the 6th of February 1803, in which it is alleged that the sunn prepared by peeling is likely to excel materially in strength that in which the fibre is dislodged from its natural situation." Dr. Roxburgh, writing in 1808, says:—"For peeling less steeping seems to be necessary than for separating the fibre after the Bengal modes, and in the former case they are less entangled, and give more support to each other than in the latter." This method is also familiar to some of the jute districts, and the Commission found it actually practised in parts of Mymensing and in Backergungo and Furreed-The fibre, when peoled off, is certainly less towy, and it would, I think, be better if this mode were generally adopted throughout the jute tracts in these provinces.

153. But whatever care and attention may be previously bestowed in the cultivation of the plant and the preparation of the fibre, all will have been utterly thrown away if the jute be not thoroughly dried before it is made up into skeins; and, guided by what I have heard, I certainly think that the wet state in which the fibre, either from the ryot's carelessness, or his wish to increase the weight of the fibre, is too often tied up, may be safely accepted as one of the principal causes of that inferiority in its quality which has been so much remarked upon of late.

154. The Collector of Furreedpore suggests a factory system of manufacturing. He says:—"As a rule (jute) is cultivated by men of very small means, none of whom possess the necessary capital to purchase any kind of machinery. If, however, a sufficient margin of profit would be gained by bringing a better article into the market, European enterprise should be available to set up the required machinery. The raw plant could be purchased of the ryot, and be

manipulated in a factory, and if a mark was adopted as is done with silk and indigo, the product would, without doubt, reimburse any speculator who was in a position to attempt to manufacture in a tract which so abound with all kinds of fibrous plants as this district." But, as stated in paragraph 149, it is doubtful if the improvement in the quality will be such as to cover factory wages for work which is done by the cultivator as a leisure-hour occupation, without incurring any out-of-pocket expense.

Machinery for separating the fibre. and effectually would doubtless be very desirable, and it would be worth the while of Government to offer premia for machines for the purpose. The primary conditions which a machine for the purpose is to fulfil are—1st, that it must be so cheap that it would be within the reach of the bulk of the cultivators of this country; 2nd, it must be so easily worked that ryots of ordinary intelligence should be able to use it; and, 3rd, it must be so simple that any village smith should be able to put it to order when required. Such a machine would effect a radical change for the better in the present rude and defective process of separating the fibre. The American Ramie machine is said to be very effectual in separating the fibre of jute from its stalks; but I am not aware of the cost of the machine. Unless its cost be so low as to bring the machine within the reach of ordinary cultivators, it would prove unavailing, as paid factory-labour in large establishments will not be able to compete with the private enterprise of cultivators who devote their leisure hours to the undertaking, but who would not and could not tender such leisure to factors.

All improvements and changes imply greater outlay of labour and capital than what are now devoted to the enter-Profit the only incentive to improveprise, and they will never be risked as long as the ryot does not find that the price of his produce will be regulated by its quality alone; that the best quality will command the highest price; and that inferior fibre will prove the least remunerative to him. Something may be done by diffusing information as to what alterations and changes in the present modes of cultivation and of manufacture are likely to improve the quality of jute; but the only demonstration which will really lead to the general adoption of improved methods of cultivation and manipulation is profit. As long as it cannot be shown clearly that improvement in quality will lead invariably to higher profits, the cultivator will never abandon the process which, without any appreciable strain on his resource of capital and labour, now brings him such large returns. I cannot better illustrate this than by reference to the extension of the trade in jute in this country. As already shown in paragraph 46, jute has been grown in India from about, or before, the time of the Mahábhárat; and doubtless a pretty large quantity of the fibre was produced in the seventeenth and the eighteenth centuries, both for home consumption and for gunnies for the packing of articles for exportation; probably also for the manufacture of cordage in the different roperies adverted to in paragraph 55. But the raw material was never exported. Trial shipments of the fibre were first made in the tenth decade of the last century, and though these were very favorably noticed (para. 55), and laid the foundation for a lucrative foreign trade, no systematic, nor any material, aid was given to it by Government, and the exports languished from that time to the close of the third decade of this century. From Appendix H, page lxiv, it will be seen that the total export in 1828-29 came up to only 364 cwt., and valued at Rs. 620-14-9. I have no returns at hand for previous years, but I have no reason to believe that the export of the fibre in any previous year was at all great. From 1828-29 the trude in the fibre seems to have gone on rising very steadily. At the close of the first five years from that date the export rose to 25,333 cwt. In the next five, the average was 67,483 cwt. The next quinquennial average was nearly double of the preceding one (117,047\frac{3}{5} cwt.), and it doubled again in 1843-44 to 1847-48 (234,055 towt.) This steady increase in the production of the fibre was effected solely by the energy of the ryots, without

any extraneous aid whatever. He found the occupation profitable, and he engaged in it with alacrity, devoting his own land, time and capital to a cultivation which he understood thoroughly, and which he found always brought him a fair return. The fibre was gradually better and better known by the manufacturers in England, and as the demand rose, so did the supply. superior quality of Russian flax, and its moderate price at the time was, however, a serious impediment in the extension of the jute trade, even if it had been, which it certainly was not, well known to manufacturers. Few would seek the jute fibre in distant India who could get the superior Russian flax at about the same price so much nearer home. The Russian war of 1854-55 upset this state of things. The importation of flax was stopped, and English manufacturers were driven to the necessity of finding a substitute, and jute at this juncture appeared the most promising. It was nearly as good as flax in quality; it was cheaper, and it was grown in a dependency of the British Crown, where it could be cultivated to any extent desirable. The stocks in the market were bought up at high prices, and the demand for the fibre in Bengal The ryot perceived his opportunity, and seized it of his own accord, without any prompting or aid worth the name. He kept up the supply to the full extent of the demand, and the average of export rose from 969,724 cwt. in 1858-59 to 1862-63, 2,628,110 cwt. in 1863-64 to 1867-68, or nearly three-fold more than that of the preceding five years, or over eight times more than the supply of the year before the breaking out of the Russian war. The total value of this export was Rs. 6,12,95,929. The last quinquennial average was 48,58,162, cwt., valued at Rs. 3,01,00,223. The period from 1828-29 to 1872-73 is just forty-five years, and the trade has risen during that period from 364 cwt., valued at Rs. 620 in 1828-29, to 7,255,689 cwt., valued at Rs. 4,23,49,620 in 1872-73. It is usual with some to descant on the apathy, ignorance, and want of enterprise of the people of this country generally, and of the ryots in particular; but the figures here given prove beyond the shadow of a cavil that they are, notwithstanding their real and alleged defects, sufficiently long-headed thoroughly to understand their interests, and capable of creating and extending an industry in five and forty years to the value of nearly four and a quarter millions pound sterling, without any aid whatever from without. they are capable, likewise, of sustaining this trade and extending it, if required, and made worth their while, none will, I feel certain, venture to question. As long as the trade will be profitable they will do all that is needed; but strong common sense and long-headedness will not accept theories for facts, nor adopt new methods and systems because they are new, or because they are told to The new methods and systems must be proved to be real improvements, calculated for certain to add to their profits, or they will have none of To illustrate this subject further, I may here also advert to a fact which is of much moment. The high prices and heavy demands for jute in 1871-72 were quite sufficient to induce the ryot, in the following year, to increase the area of his cultivation by about 30 per cent. over that of the preceding year; but his customers failed to respond to his enterprise. The purchasers fell back, the prices fell, and the market was glutted; as a necessary consequence the ryot was a heavy loser, and he at once reduced the area of his cultivation from about 925,899 acres in 1872 to nearly 517,107 acres in 1873. In short, the best and only incentive to the extension of the jute trade is, as in all other cases, profit; and as long as European manufacturers will keep it up by a steady demand at remunerative prices, so long there will be regular improvements, both in the quality and quantity of the supply; but sudden and heavy falls in prices will tell seriously against both.

157. The influence of the jute cultivation on the country and the Influence of cultivation on the con population is variously described in the local

dition of the people. reports.

In the Sonthal Pergunnalis, Maldah, Howrah, and Bhaugulpore, the cultivation, being limited to supply only the local demand for the fibre, has produced no marked influence on the country, the people, or the production of tood-grains.

In Purneah.—"The cultivation of jute," it is said, "has had a most beneficial effect both on the people and the soil. It is in many respects like indigo: it can be grown with advantage upon land, which, after it has been reaped, can be sown with mustard, and in some cases with rice, &c." "I do not think," adds the Collector of the district, "the cultivation has had the effect of decreasing the amount of cereals or other crops grown, but has simply been the cause of more land being brought under cultivation."

In Julpigori.—"The cultivation has operated beneficially. It brings money into the country and betters the condition of the inhabitants. Although cultivation of jute increases, cultivation of other crops does not decrease, as is

obvious from the fact that much high land still lies fallow."

In Cooch Behar—" The cultivation of jute contributes to the prosperity of the country and population. It has not affected the production of the necessary amount of cereals," &c.

In the Darjeeling District.—"The soil being rich and fertile, the growth has no effect whatever on the production of cereals, &c. The profit they (the cultivators) make in jute is clear gain."

In the 24-Pergunnahs.—" The indiscriminate cultivation of jute in the Baraset sub-division is said to enrich the ryots who grow the crop, and the

paikars and mahajuns through whose hands the fibre passes."

In the Alipore Division.—" It does not appear that the cultivation of jute, as it at present exists, affects the country and population materially, &c. Owing to the increase of jute cultivation, the cultivation of biri robi, one of the important cereals, has become neglected."

In the Bussirhat Sub-division.—" The cultivation is carried on advan-

tageously in a pecuniary point: cereals less produced."

In the Satkhira Sub-division.—"Rice is not affected by jute cultivation, which is a paying crop, being neither expensive, nor troublesome, nor precarious." "The condition of the jute cultivators has decidedly improved; indeed up to a certain point the condition of the people must necessarily improve as the market prices of food-grains will rise. No less land is used for food grains; of course there is a limit to the extension of this advantage: whether that would ever be reached depends on Europe, not on us. Food-grain cultivation necessarily decreases as cultivation spreads."

Dacca.—The Collector considers "the effect of the rise of the jute cultivation is an unmixed benefit to the people, provided it is not carried to excess; but again this works its own cure, and there is a reaction as there is this year. So long as a man keeps within the limits of the working power of his family and servants, his jute crop is so much cash in his pocket, and I attribute a very great deal of the prosperity of the cultivating class here to the influx of hard

cash in return for jute."

Backergunge.—" In 1871 cultivators as a body acquired a good deal of money by the sale of jute, as the price ruled enormously high. Last year the loss sustained by them has been more than proportionate, the price realized being not even just sufficient to cover the expenses incurred in the production. The cultivation has not yet been carried to any such extent as to affect materially either the country or the people in general, or the production of the necessary amount of cereals, &c."

Furreedpore.—"The extension of jute cultivation has, it appears, only affected the production of the aus paddy, which has decreased in proportion; it has not in any way injuriously affected the country or population, the profits arising from jute cultivation being to some extent spent on purchasing grain

from surplus-producing districts."

Mymensing.—"In an economic point of view, jute has been an immense boon to the inhabitants of Mymensing. It has enabled them to utilize lands which were previously of little value, and it has poured silver into the district till the great bulk of the people are decidedly raised above a condition of poverty. At the same time, I am not of opinion that the production of cereals has been diminished to any appreciable extent, if indeed it has been diminished at all. I am sensible of the difficulty of applying abstract rules of political

economy to the state of things around us in India; but the following points may be noticed as bearing on this part of the question:—1st, the price of rice has not risen in the last four years; 2nd, even if the price of rice had risen somewhat, this would have been sufficiently accounted for by the rise of price which would naturally follow the influx of silver rising from the sale of jute; 3rd, as, in spite of this, rice has not risen, it follows that rice cultivation must have been extended and not diminished; 4th, it is impossible, however, to say what quantity of the silver which has flowed in has passed into circulation, as, of course, only silver in circulation can affect prices, and the quantity of silver hoarded in this district is very considerable. But apart from considerations of this kind, I can state with tolerable confidence, from my knowledge of the district and my experience as a settlement officer, that the production of cereals is not diminishing. It is seldom that the ryot is tempted to sow jute upon lands which ought to be devoted to rice, as he has generally the command of lands of inferior quality, which are nevertheless very well adapted for jute."

Rungpore.—" The increase in the cultivation affects the population, which

Rungpore.—" The increase in the cultivation affects the population, which is nearly wholly agricultural, in a very favorable manner, as far as pecuniary matters go; they get much more profit out of this farming." "The district has always a surplus of cereals, and the increase in jute cultivation has only affected it to the extent that there is less rice exported since jute has taken

its place."

Pubna.—"The extension of the jute cultivation, especially in Serajgunge sub-division, has been the means of adding considerably to the income of the ryots. Large sums of money were made by the industry in the years 1869, 1870, and 1871, and the losses sustained in 1872 were not equal to the amount formerly gained. There has been indeed a contraction of the area of land devoted to the cultivation of rice and other cereals; the production has therefore necessarily suffered, though not, I believe, to an alarming extent; but it does not appear to have affected the country or the population, inasmuch as the proportion of land under jute cultivation is considerably small when compared to the large area set apart for the cultivation of other crops; and the quantity of rice, &c., grown therefrom is more than sufficient for local consumption."

* * "But, on the whole, I think that the advantages of the cultivation

outweigh the disadvantages in ordinary times."

Rajshahye.—"The cultivation of jute has improved the condition of the ryots, owing to the high price which ruled the market during three or four years, does not admit of a question. Every man will exert himself to raise that article which has a growing demand and a ready market, and which brings him The market will always fluctuate, and it is difficult to forea handsome return. tell how long the present state will continue; the gains of past years will keep the cultivators in their pitch of activity for some time to come, and they will go on with the cultivation so long as they will find it remunerative. No danger need be anticipated that the extension of the cultivation of jute would cause a diminution of food-grains. The proportion of the land occupied in the cultivation of jute compared with the proportion of the arable land in the district is entirely small, and if a few square miles of land were devoted to the cultivation of jute, it cannot affect the general state of the district. The soil that grows early paddy will grow jute, and jute is alternated with early paddy."

Dinagepore.—"The present cultivation of jute affects the country and population favorably; when the market is high it has no effect on the production of the necessary amount of cereals, because there is plenty of land for both."

Bogra.—"Many people have enriched themselves by cultivation of jute, but in many instances the jute has been cultivated to such an extent that the supply of other cereals has fallen short, and the people have suffered in consequence." * * "The jute plant tends to the decrease of other crops, leaving less room for their growth, and destroying the fertility of the land in the course of three or four years."

Midnapore.—"The cultivation of jute is carried on to a comparatively small extent, and hence the manner in which it is affecting the country and the population is not remarkable. Most of the jute grown is used by the

cultivator for his domestic purpose. A portion of the surplus is sold at its If there is any residue it is exported to Calcutta or elsewhere; several markets. but my belief is that, if anything, the district imports." * * " However useful jute may be to the people, it does not contribute to their wealth to an extent deserving of notice. As to the effect of cultivation of jute on the production of cereals, &c., it may be stated that the plant is sometimes grown as an edging to the sides of ground cultivated with biri kulai, aus paddy, &c., but this is done not so much to protect the crops from the inroads of cattle, or to affect them in any other way, as not to leave uncultivated the sides of the ground on which the crops are grown."

Hooghly.—"Jute is a very profitable crop to the ryots; and since its cultivation has increased, it has improved the condition of hundreds of ryots. It has in some measure superseded the cultivation of aus paddy and indigo. which last in some places rotated with jute, but it has not interfered with

any other produce."

Goalparah.—"The jute cultivation, as it at present exists, does not in any way affect the country and population. It is reported by the zemindar of Kurubarree that the ryots of that pergunnah resort to jute cultivation somewhat to the neglect of the growing of other grains, even to rice, because of the superior profit arising from jute cultivation."

I have quoted largely from the district reports to show what the different local officers think of the effect of the Opinion of the Commission. extension of jute cultivation in the country; but I cannot, I regret, concur with them in the opinion that jute has not injuriously trenched upon the land which used formerly to be devoted to food-grains and other crops. From Appendix H (p. lxiv et seq.) it will be seen that export trade in jute has increased from 496 maunds in 1828-29 to 10,342,081 maunds At five maunds per beegah, the 496 maunds of 1828-29 would in 1872-73. represent an area of 99 beegahs, and the 10,342,081 maunds of 1872-73 an area of 2,068,416 beegahs, i.e. an increase of from 99 to 2,068,416 beegahs. have not been able to procure returns of the export trade in gunny-bags from 1834 to 1860; but the increase from 1863 to 1872-73 has been from 28,122,524 to 32,767,930 pieces. The pieces were not of uniform size; some were long rolls, others small pieces fit for gunny bags; their total value for the year 1872-73 was Rs. 83,07,629, which would give an average of about 15 pice per piece. Calculating each piece to weigh at an average 1½ seers, the total of 1872 would represent 1,203,522 maunds of jute without taking into consideration the quantity wasted and thrown away as useless tow, or an area of 240,704 begahs. Add to this about as much more for rope and twine and for the number of gunnybags manufactured in the country and sent out with increased exports in rice, oil-seeds, pulses, and other articles, and the total would represent the enormous area of 2,549,824 beegahs of land devoted to jute cultivation for export trade The demand for jute for home consumption has also increased greatly; but of that I have no data to go by, and must therefore leave it out of my calculation. Of the large area under jute above shown, at the highest estimate one-fourth is newly reclaimed land which was not formerly under cultivation, and a sixteenth more, land disengaged from indigo cultivation, and the remaining eleven-sixteenths, or over two-thirds, represent the quantity which has been alienated principally from food-grains. I say "principally from food-grains," because it is certain that the requirements of foreign markets have caused an increased cultivation of oil-seeds and pulses, and not only no land has been alienated from them, but a part of old rice and other lands have been devoted to them; the bulk of the alienation has consequently fallen upon rice. demand was sudden; it fell unequally on different parts of the country, making the greatest exactions on those parts where jute was most grown; there was not sufficient time allowed for reclamation of wastes, and the ryot had to take up whatever land was ready at hand and what he could conveniently spare, and the fields which yielded food-grains were the first to yield a portion of their area to jute. This enormous alienation cannot but tell against the food-supply of particular localities; especially as, owing to want of means of intercommunication and other causes, the exchange of produce between the different districts of the country does not take place freely, and from immemorial custom people look to their supply of food from their own fields. The gradual but steady increase in the prices of food-grains since the Russian war of 1854 proves this incontestibly. Doubtless there have been other causes at work; but most of these resolve into increased export, and increased export means larger areas devoted to other than food-crops for the people of the country. I should add, however, that up to this time the alienation has not so reduced the supply of food as to be injuriously felt; while it has undoubtedly exercised a wholesome influence on the cultivators by opening to them a new field of lucrative labour. It brings in money without making them dependent upon factory men, zemindars, and mahájuns, and has improved their condition generally: in some places so much so that the ryots pay the rent of their lands from the proceeds of the sale of jute alone. The total culturable area of the country, however, is large, and there is ample room for a much larger jute cultivation, without making the people dependent for food from foriegn sources. Some details will be given on this subject in a subsequent paragraph.

159. The effect of the extension of jute cultivation in the country may

be examined here from another point of view.

Sanitary effects of jute cultivation. The process of preparing the fibre is one which causes extensive defilement of tanks and bheels

by the rotting of the parenchyma of the bark, and it is necessary to inquire what effect that has on the health of the people engaged in the work, as also on that of their neighbours. The subject early attracted my attention, and the district officers and civil surgeons were accordingly requested to favour the Commission with their opinions on that head. The following are extracts from the local reports which have alluded to the matter:—

Sudder Sub-division of the 24-Pergunnahs.—" When jute is steeped in any pond or tank within a village, it emits a smell injurious to the health of the

inhabitants."

Baraset.—" The indiscriminate cultivation of jute * * is injurious to the health of the people, as it poisons the water-supply of the country, which is already bad enough."

The District Officer in Cooch Behar also expresses a similar opinion.

Jessore.—" The steeping of the jute plant in stagnant pools within villages emits a most offensive smell, and causes the drinking water to become very foul, and thus a source of sickness to the surrounding population is

engendered."

Dacca.—Dr. Wise says: "It is impossible to find out if the emanations from jute while steeping are injurious to health, as the bheels are extensive swamps in which vegetable matter is already decaying, and it is extremely unlikely that the additional amount derived from the rotting jute can add in any appreciable measure to the noxious gases which are produced under such circumstances. I can, moreover, positively assert that during the past seven years no outbreak of cholera in this district has been traced, or even attributed, to the steeping of jute."

Mymensing.—" My experience," says the Civil Surgeon, Dr. Shaw, " of the effect of jute cultivation upon the health of those employed in cultivating it,

has taught me-

1st.—That the actual cultivation of the plant is not injurious.

2nd.—That when the plant is cut down and is undergoing the process of steeping, the exhalations from it are decidedly injurious. The symptoms I have most commonly observed in those exposed to the influence of these exhalations are nausea, head-ache, and diarrhea. There can be no doubt that the continuance of these symptoms predisposes to other diseases, such as fever, dysentery, and cholera. Last year the first appearance of cholera in anything like a severe form in this district was at Dewangunge, in the Jamalpore sub-division, where, owing to a fall in the price of jute, the cultivation of it was almost abandoned, and whole fields of it, covering a large area of

country, were left to rot; the air and the water were tainted with it. Diarrhea and dysentery were very prevalent; and a very fatal epidemic of cholera succeeded, which, in less than a month, carried off about 400 people in the villages on the *chur* of the Brahmapootra, in the jurisdiction of Dewangunge thannah, by no means a very thickly populated area."

The Collector of the district writes:--"Some officers whom I have consulted are very strongly of opinion that, from a sanitary point of view, jute cultivation has had a very injurious effect. Mr. Donough, the Deputy Magistrate of Jamalpore, expresses himself in the following terms on this part of the subject :-- 'The atmosphere becomes so vitiated in all the localities where jute is extensively cultivated by the very offensive effluvia arising from the stagnant water in the pools and ditches in which the jute plants are rotted previous to the fibrous bark being removed from the stalk, that soon after the manufacturing is over endemical cholera and other diseases break out, and hundreds of the people die regularly every year at that season. And even when the plant is macerated in running streams, the water and surrounding air are similarly impregnated with the offensive effluvia.' I give these views as those of an experienced officer, but not as myself in any way endorsing them. unpleasantness of the smell there can be but one opinion; but an unpleasant smell is not necessarily unwholesome; and the smell in question is not unlike that of a tan-pit, which, I believe, is considered rather wholesome than other-I do not think there is the slightest ground for assuming any connection between jute cultivation and outbreaks of cholera or of any other disease."

Rungpore.—Dr. Ghose says: "The causes of cholera are not so well ascertained as to warrant us to give a decided opinion as to whether the steeping of jute causes cholera or not. It may, however, be said with a tolerable amount of certainty that cholera is not directly produced by insanitary condition brought on by the process, for heaps of instances are known in which whole districts have been filled with the stench from the putrifying jute without there being a single case of cholera present in them. On the other hand, evidence is not wanting to show that, though not a direct cause, decomposing vegetable matter in the drinking water imparts an undue activity to the germs of cholera, should they be present."

"The steeping of jute," he continues, "renders impure two of the essential articles that keep up life, viz. air and water. During the rains, when ditches are full of water, jute is steeped in them. The stench that is given out is very disagreeable, and cannot but be a prolific cause of periodic fevers and bowel-complaints. In addition to these weather diseases, the breathing of the air must produce an imperfect condition of nutrition, making itself evident in an enlarged condition of the spleen. Though these ditches are not used as sources of water-supply, yet after heavy rainfall they overflow and mix with the surface drainage, get into wells, rivers, and tanks. When the water-supply is thus tainted, it must have a prejudicial effect on the health

of the people."

"It so happens that the jute-growing districts in Bengal are more or less malarious, and therefore it is impossible to ascertain how much of the fevers and dysentery prevalent in these places are owing to malaria, and how much to the steeping of jute."

"I am strongly of opinion that the steeping of jute has much to do with the fevers that prevail in the districts where that fibre is grown during the

months of August and September."

On the same subject the Collector writes:—" It is an open question whether the extension in jute steeping has not affected the health unfavorably in making the epidemics of cholera more frequent and deadly."

Rajshahye.—"The present method," writes the Collector, "of soaking the jute in ponds and stagnant pools is attended with inconvenience from the offensive smell which the steeping gives rise to. The health of the men in the neighbourhood where jute is washed is considerably affected by the disagreeable effluvia which rises from the water."

Pubna.—Dr. Davies writes: "I have lately been on a tour through the district, visiting the jute market of Serajgunge, among other places, and took the opportunity of making inquiries as to the prejudicial effects of jute-steeping, but failed to discover that the stench arising therefrom caused any particular diseases to break out." * * "The stagnant water in which jute is steeped, if afterwards drunk, to save the trouble perhaps of fetching better from a distance, would doubtless be apt to cause bowel-complaints of a more or less serious nature." For this reason "the steeping of jute is, to a certain extent it may be, and I think is, only to a small extent prejudicial to the inhabitants of the district in which the plant is cultivated."

"I attach," says the Collector, "some importance to the fact that jute produces a most offensive smell while being steeped, thus adding a new horror to the dreadful autumn of Eastern Bengal."

Bograh.—Mr. Lyons: "(1) The living plant is not noxious to health, but the occupation of preparing the fibre is so, in as far as the operator has to work for days and hours together in water up to the middle; hence, his greater liability to rheumatic affections, bowel-complaints, and fever. (2) When the process of steeping goes on in a rapid, running stream, say as is the case in the eastern tracts of this district in the Daokola and Benyali rivers and other running streams, the effect upon health is not noticeable; but where the process of steeping goes on in tanks and stagnant bodies of water, it undoubtedly affects the health of the inhabitants injuriously by producing bowel-affections and symptoms closely allied to those of cholera."

"I cannot but believe that the stench arising from the steeping of jute

plant is deleterious to health, as all stenches are."

"As in the places I visited the steeping was carried on in running streams,

I did not find cases of sickness attributable to jute-steeping."

"I have, however, little doubt in my mind that, could I visit places where the rotting goes on in tanks and stagnant ponds, I could find that much serious sickness could fairly be attributed to infected air and water."

The Collector adds: "The smell from the saturated jute bundles and from the water in which they have been immerged is prejudicial to health, fever and

diarrhœa ensuing from it."

Burdwan.—"The immersion of the plant in stagnant pools causes decomposition and sends up effluvia, which affects the health of the people."

Goalparah .- Dr. J. Slane: "I am disposed to believe that the steeping of jute in tanks, even though accompanied with stench, will not prejudicially influence the health of the inhabitants residing in the neighbourhood of the tanks so long as they abstain from using the water for drinking or bathing. The mere rotting of vegetable matter in water, unless under exceptional circumstances, judging from analogy, does not produce disease. I have known large quantities of horse litter at the Haupper Stud thrown into tanks for conversion into manure, and never knew the slightest ill-effects produced on the health of the European officers and native establishment. Indeed cholera is of a very rare occurrence at the Stud."

Dr. McDonnell of Serajgunge, whose long local experience as well as professional knowledge entitle his opinion to weight, says: "I do not agree that it" (jute-steeping) "is in any respect unhealthy, or that it breeds any disease. It is certainly offensive to our olfactories; but as a case in point, so is the water in which the indigo plant is steeped, and so is the refuse of the indigo plant; but they are well known to be otherwise than unhealthy. The drinking of the water would no doubt be injurious, but from June to September people can well find other water."

In a professional question of this kind where medical opinion is so discordant, it would be presumptuous on my part Sanitary effects of jute cultivation. to draw any deductions. I may safely observe, however, that if there be any truth in the opinion which attributes unhealthiness to offensive smells from decomposing vegetable matter, the rotting of jute in the midst of human habitations must be injurious, and there is no question that it is

extremely offensive to our olfactories. Inasmuch, however, as the rotting process is not generally conducted in the midst of large populations, but away from villages, in neglected tanks, ponds, and bheels, whose water is never drunk, and also in rivers whose running waters carry away the bulk of rotting matter as soon as dissolved, and also a quantity in an undissolved state, the injurious effect of the operation cannot be felt by the people to any very large extent. As the operation is carried on in the months of August, September, and October, notoriously the most unhealthy months in Bengal, there is doubtless a coincidence of increased disease with the season of jute-retting; but as the increase of illness and mortality takes place likewise in an equal degree in those districts where no jute is manufactured, the coincidence is simply accidental, and not related to each other as cause and effect. Generally speaking, the cultivators themselves do not attribute any unhealthiness to jute-retting. Of course the contamination of tanks and wells which supply drinking water by the overflow of rivers, ponds, and bheels, in which jute has been macorated, is a serious matter, and, where it happens, must be very injurious; but this accident, I think, is not frequent. The percolation of the foul water through the soil into fountains for the supply of potable water is also possible, and it would doubtless be equally injurious; but I had no means of ascertaining during our necessarily hurried tour in the mofussil before the rains to what extent it does really take place.

161. As already stated, jute is cultivated by the ryots as a secondary object to fill up a gap in their occupation, or rather as a supplementary article to rice and other staple produce. Very few, if any, devote to it exclusively, and as the out-of-pocket expense at the first start is slight, the labour, seed, and manure, when used, being the cultivators' own, there is no demand for advances, and a good number of ryots in easy circumstances carry on the cultivation without taking any advance from mahájans or dealers. But in some places the system of advances is in vogue.

In the Barripore sub-division of the 24-Pergunnahs some ryots are 162. known to grow under advances made by bepáris Advance bonds. or paikars (petty dealers). To show the nature of the conditions under which advances are made, I append copy of a form of contract entered into by a jute-grower in that part of the country (Appendix D, pp. LIII et seq). In this deed the producer, in consideration of an advance of pp. LIII et seq). Rs. 24 received by him in Kártika (October), binds himself to deliver 12 maunds of well-dried jute in Pous (December), and in case of failure he agrees to pay the value of that quantity according to the market rate of the day. Written contracts are not, however, often made. As in other cases with the people of this country, so in this, the business is generally carried on under verbal arrangement. Written contracts when made are known under different In the Mymensing district they are called shátá páttá, or goláját; but in the 24-Pergunnalis these deeds are known as molá.

In Dacca the advance system is not much in vogue; but it is prevalent in Rungpore, Mymensing, and Goalparah, Conditions under which advances where the conditions under which the advances are made and received are various. In some places the advancing party, commonly called the mahájan, makes advances on the express understanding that he is to be repaid in jute, to be delivered at the market rate of the day, and that he is also to be paid a commission of 11 seer of jute for In other places the entire produce of the field or fields each rupee advanced. In case it realizes more than the sum advanced, is made over to the mahajan. the producer is allowed a refund of the difference. In one or two places the mahájan is content to take only 2 pice on the rupee. In and about Jamalpore, in the Mymensing district, a ryot under advance has to give to his mahajan 5 seers on every maund of jute sold by him to cover the charge for interest on the loan; and I have the testimony of several agriculturists to the fact that in some instances, in addition to the 5 seers of jute, 2 pice has also been charged by the mahajans by way of interest.

- 164. Appended are copies of two plaints which had been once filed in the Court of the Moonsiff at Jamalpore, as also of contracts upon which the suits were based. It will be seen from these documents that the growers in these cases obtained advances in the months of February and March from certain mahájans, binding themselves to pay in jute, and on their failure to fulfil their engagements, the man who had received Rs. 15 to supply nine maunds and fifteen seers was sued for Rs. 37-8, with costs and interest, and the man who had received Rs. 20 on condition of delivering fifteen maunds, was sued for Rs. 60, with costs and interest on the account.
- 165. In parts of Rungpore, however, the grower borrows money on the Terms of contracts in Rungpore, pledge of the crop, giving two seers of the fibre for every month the money remains unpaid. In other parts of the same district the ryot, when taking the advance, binds himself to deliver the produce of his field at the market rate of the day, less annus four for every maund delivered. Towards Chilmari on the Brahmaputra, when the mahájan wishes, the rates are fixed at the time the contract is made, and in some instance the party receiving the advance has to deliver his produce at annas two less than the market rate.

In Goalparah the ryots sometimes grow the staple under advances, which they repay in jute, with interest at the rate of one anna to one and half anna

per rupee.

In the Deora districts the ryots, as a rule, do not grow under advances. Sometimes a needy ryot, when pressed for money, borrows it from the mahajan of the village and repays the loan in jute, with two to five seers of the fibre over and above each maund contracted for.

In the Kishoregunge sub-division of Mymensing the mahajan generally takes jute from the ryot, who has received an advance, at four annas less than the market rate on every maund; and if the stipulated quantity is not delivered in the same season, the deficiency has to be made good in the following year.

Where jute is not grown under advances, the ryot takes the raw produce of his crop in bundles, into which the hanks of Buying and selling the fibre are made up, to the nearest háts, or to the large marts, according to local circumstances, and there sells it to petty traders, differently known at different places under the names of páikárs, fariás, or bepáris, who take the produce away, and in their turn dispose of it to the mahájans, or merchants of greater pretension. The petty traders also go about with money from homestead to homestead, making purchases of the fibre, which they either dispose of on their own account, or make over to the mahájans from whom they may have received advances. These itinerant traders, known in the eastern districts, where they have to travel in boats, as bhásániá bepáris, and elsewhere as fariás, are to be met with in every district where jute is largely grown, and almost everywhere they stand in the middle between the jute-grower and the merchant. In Rungpore jute sometimes passes from the ryot direct to the mahajans themselves, who send it to Calcutta. disposed of to beparis from Serajgunge, who go up in boats, occasionally with salt, but oftener with cash, either bartering for, or buying up, the jute according to the ryot's choice. These beparis are generally allowed a half share in the profits of the venture by the Scrajgunge mahajans, who sell the jute at that mart to native or European merchants for shipment to Calcutta. Dacca, when the ryot owns a boat, he himself goes with his produce direct to the mahájans, chiefly at Naraingunge. Sometimes two or more ryots club together and hire a boat jointly to carry their produce to market. But the pálkár or faría prevails everywhere.

167. Mr. Nolan's graphic description of the manner in which transactions in jute are conducted at the Serajgunge mart may, mutatis mutandis, stand for other large rural

centres of the trade.

"The hanks," he says, "are brought by boat er on men's heads to the nearest market or hat, one of which is to be found within a few miles of every

village. There it is sold to the bepáris, as the dealers who go into the interior are called.

"The bepáris never give advances to the ryots, but always pay in ready money.

conveyed by the beparis to the exporting marts-Serajgunge, Raygunge, Pangassi, Chunderkona, Oollaparah, and Shahajadpore. There the fibre is sold to the mahájan, the merchant who remains stationary in one place and buys jute brought to him, either as a speculation, or for a commission of 5 per cent. In Serajgunge the bepári deals with the mahájans through the agency of a broker, called a dollal. Sales are conducted in a floating bazuar on the river, where all classes of traders, European as well as native, are to be seen daily between 8 and 11 A.M., passing backwards and forwards in light boats, called dallaly dingis, amidst an incessant clamour of tongues. More than half the mahájans are Murwarees (called Kayas), and their gay dress and the rapid movement of their boats give an animated appearance to the scene. There is the greatest noise and confusion in every side, but the real business is transacted without a The dollal tells the mahájan what is the number of maunds of jute in his client's boat, and where it comes from; he offers a sample, and then they put their hands together under a cloth. Offers and demands are indicated by tracing the Bengalee figures expressing the rate per maund on the palm of the person concerned, no one else being able to know what amount is to be given If the parties come to terms, a little jute from the sample is or received. delivered by way of a sign that the bargain is complete. This trade language of signs is used at Naraingunge, and probably in most Indian marts. have been introduced by the dollals in order to cheat the bepáris. These country traders are exposed to be deceived as to the price agreed to, and they always seem to me to play a very ridiculous part sitting in a corner of the boat while strangers dispose of their property by secret signals.

"The bargain made in the broker's boat is seldom adhered to. When the bepári brings his jute to the mahájan's ghât, he is told, generally with great truth, that it is not of as good quality as the sample, and the price has to be settled over again. If the market has risen, the seller claims the benefit."

168. In cases of disputes regarding the quality of the article bargained for, a reduction is the usual course; and if this cannot be adjusted by the parties concerned, arbitration is usually resorted to. The price is usually paid on the twentieth day after purchase.

The weight by which jute is sold in the villages and smaller markets varies from 60 to 90 tolahs to the seer in the different districts. At Serajgunge (Pubna) the standard is 84 tolahs and 10 annas, at Madaripore (Backergunge) it is 82 tolahs and 10 annas, and in Calcutta it is 80 tolahs.

170. At the mart of Serajgunge in Pubna jute is bought by the Allowances at sales, &c., at the Seraj. Oswál firms from among Oswál dealers, on a commission of 1 per cent. in the case of traders who receive advances to make purchases at the different rural seats of produce, on condition that they shall dispose their investments through the advancing firm. Besides this commission interest at 9 per cent. per annum has to be paid by the trader on the amount of the advance. The buyer is further allowed half a seer of jute upon each drum (about a maund) by way of allowance for possible error in weighment (dhaltá), and an overweight of another half seer on the same quantity as a gratuity. The seller has, moreover, to give five seers on every hundred maunds to the crew of the buyer's broker's boat, and similar allowance to the buyer's crew for weighing the jute bought.

171. If the seller happens to be a Bengalee, the allowance to the Oswál, Allowances at sales, &c., among Oswals buyer's crew has to be doubled. The commission also is enhanced from one per cent. to two annas per maund, which, however, in the case of unusually large sales, is reduced to 1½ annas. For retail sales and small consignments it rises to 3 annas per maund.

Allowances at sales, &c., among Bengalis agency firms and dealers the usual commission is two annas per maund, without reference to advances. No interest is charged on advances.

The jute stores of Serajgunge are fed by supplies drawn by itinerant traders, chiefly from the districts of Rungpore, Goalparah, Bograh, parts of Mymensing, and Cooch Behar. The places from which the different qualities of the jute at this mart are brought are named in Appendix B, No. 36, p. xxvi.

173. At Naraingunge (Daca) the agency houses charge the seller a comAllowances at sales, &c., at Narainmission of from \(\frac{1}{2}\) anna to 4 annas, and sometimes
even up to 5 and 6 annas on each maund, less a pice
per maund allowed to the broker through whom the sale is effected, the
lighter rates being usually charged to those who do not take advances; but this
is not invariably the case. Traders receiving advances without giving a security
or executing a bond are sometimes charged 18 per cent. Interest on the
amount advanced, in addition to the commission. No Oswáls have opened
business here.

The importations to this place come from Noakhally, Burrisaul, Mymen-

sing, Tipperah, Sylhet, and from the banks of the Luckheea.

174. At Madaripore (Backergunge), the largest centre of the deorá jute Allowances at sales, &c., at Backer trade, the local merchants buy up either direct from the growers or through petty dealers, as in the other marts. The purchases are made for ready money generally. No advances are made either to the grower or to the petty trader.

The produce of Furreedpore and Backergunge is collected chiefly at this

mart.

175. At the two marts of Scrajgunge and Naraingunge the jute is generally made up into drums before it is forwarded to Calcutta. Sometimes it is sent in hanks also. But the deorá jute is invariably forwarded in skeins.

The cost of making a hundred drums ranges from Rs. 3-2 to 4-0.

Appendix K (pp. LXXIII to LXXVII) gives a list of the marts and markets in the district of Bengal in which jute is bought and sold.

176. The Commission has not been able to collect any satisfactory returns of the internal trade in jute. There is evidence enough to show that large quantities of the fibre pass from district to district for local consumption, for manufactures, and for despatch to other places, but no figured statements of the quantites which so circulate have come to my hands.

For instance, a great part of the produce of Bogra is sent to the marts of Serajgunge and Pangassi in Pubna, but the exact quantity so sent is unknown. Rajshahye also sends its jute to Serajgunge, but its measure is also unknown. In Dinagepore the gunny-bags manufactured in the northern parts of the district, "are," says the Collector, "bought up at the different hats and sent to Debegunge on the Atrai, which may be considered the head-quarters for gunny-bags in this district." "The bulk of unmanufactured jute," he continues, "goes down" (it is not stated whither) "by water; and a large amount of gunny-bags are retained in the district at the gunges on the different rivers to pack and dispatch rice in." But he has not been able to collect any details as to quantities.

Again, the Hooghly district is said to send a great part of its produce to

the Gouripore Mills, where it is manufactured chiefly for exportation.

From Purneal jute is sent to the district of Mirzapore in the North-Western Provinces, but in what quantities it is not stated.

Burdwan is also said to import the fibre for local use from Serajgunge and

other jute-producing districts of Eastern Bengal.

During 1872 about 472 maunds were imported into Beerbhoom, 400 maunds being intended for the jail, whence it was mostly re-exported in a manufactured state.

Juto is imported also into Moorshedabad from Dinagepore, Rungpore, Pubna, and Maldah. The quantity so imported annually is about 25,000 maunds,

which mostly goes to the city of Moorshedabad and to Baluchar. Besides this quantity, some 20,000 maunds, produced in the district, are annually sold at Dholaan, a most flourishing mart on the Ganges. The importation from other districts is effected by boats; but carts are generally used for transporting homegrown jute within the district. "I believe," writes the Collector, "that a portion of the jute imported into this district is subsequently exported to Calcutta; but, as far as I can ascertain, little or no exportation takes place with respect to jute grown in the district."

In 1872-73, 2,564 maunds of jute are stated to have been imported into Chittagong for local consumption from Naraingunge, the only mart from which that district draws its supplies. During the same period Chumparun imported 2,200 maunds, principally for use in the indigo factories; Tirhoot, 12,028 maunds; Gya, about 500 maunds; and Patna, about 2,000 maunds.

But no record has hitherto been kept of the extent and direction of the internal trade necessarily existing between districts which grow jute largely and districts which, needing the fibre, grow it scantily, or do not grow it at all. There is a strong trade jealousy, which prevents dealers, manufacturers, and others connected with the trade, which stands in the way of collecting information on the subject, and I regret therefore I am unable to submit any more detailed statement on the subject than what is afforded by Appendix P, p. xci.

177. The great bulk of jute brought down to Calcutta finds its way thither Means and cost of conveying jute by water, either in country boats or in steamers,

o Calcutta. principally for exportation.

From Pubna it is sent by water direct to Calcutta, or first to Kooshtea, or Goalundo, whence it is brought down by rail. The cost of transport varies from 4 to 7 annas per maund. From Serajgunge jute is conveyed direct to Calcutta, and the cost of transport is stated to be about 4 annas per maund, if in boat, and about 10 annas, if in steamer.

The exportation from Dinagepore takes place "partly by land and partly by water." The rivers going down before the jute is ready for shipment, it has to be carted to some mart further south of the districts, where it is put into

boats, and sometimes transhipped from smaller to larger boats.

"The cost of carting," the Collector writes, "say 8 to 10 maunds in a cart, a four days' journey, at 12 annas a day per cart, five days from Dabeegunge to Nyabunder, and three days to return empty." * * * "Rs. 13 is the carthire charged for 40 bustas; the carts do three trips a month." * "At Nyabunder the bustas are put into small boats, holding about 30 maunds or less; boat-hire from Nyabunder to Neetpore is Rs. 3 for 40 bustas. At Neetpore they are transhipped to large boats and sent to Calcutta or Kooshtea, where they come in from 12 to 21 days." The cost of carriage thence to Calcutta is not stated.

Rungpore sends its produce by steamer or in country boats to Calcutta direct, at a cost of Re. 1-2-0 per maund, or to Serajgunge at a cost of 7 or 8

annas per maund.

The mahajans of Shumbhoogunge (Mymensing) send jute, which they locally purchase, either to Naraingunge or Serajgunge, in boats of 300 or 400 maunds burden, but it is not stated what the boat-hire costs to either place. Sometimes they even forward it direct to Calcutta in charge of the manji of the boat, who is known at times to dispose of the jute on his own account, and to return to the mahajan with a false tale of wreck and total loss of cargo. The cost of boat-hire to Calcutta direct varies from Rs. 35 to 50 per 100 maunds, being dearer in November and December in each year, when the rural population is engaged in harvesting the rice-crop.

From Tipperah jute is sent by boat to Dacca, Naraingunge, and one or two depôts on the bank of the Megna. The cost of transport is said to be Rs. 3 to

5, according to circumstances and distance.

Boats bring the fibre from Purneah to Calcutta at a cost of Rs. 80 for every

100 maunds.

Bogra also despatches its produce in boats, taking the Muddhoopore police station as the point of shipment. The Collector states the cost of transit per maund to be as follows:—

					Ks.	Α.	r.
To	Serajgunge	•••		•••	0	8	0
,,	Pungassi	•••		•••	0	6	0
11	Pungassi Calcutta		•••		0	12	0

The jute of Rajshahye is forwarded chiefly to Calcutta by boats at a cost of Rs. 17 per 100 maunds, and the cost is nearly the same when it is sent from Ramporehât first to Kooshtea by boat, and thence by rail to Calcutta.

The Eastern Bengal Railway, the steamers and country boats are employed in the despatch of the produce of Dacca; but the largest quantity is carried

away in steamers. •

The charge for the transport of a maund is said to be as follows:—

		Its.	A.	Г.	
By rail or steamer from Naraingunge to Sealdah	•••	 0	11	9	
By boat from Naraingunge to Calcutta		 0	9	()	

In Hooghly the jute is carted or sent on pack-bullocks to the river's bank, and thence put into boats for Calcutta. The cost is one pie per maund per mile.

How and at what cost jute is exported from Julpigorce, cannot be ascertained from the local reports.

Cooch Behar sends its produce to Serajgunge by boat at a cost of 6 annas per maund.

To the same mart Goalpara forwards jute either by boat or in steamers,

at an expense of 4 or 5 annas per maund.

Furreedpore exports its jute entirely by water carriage, occasionally direct to Calcutta. Generally it is collected at the different centres of the trade in the district before transmission to the Presidency, and it is also forwarded through Naraingunge in Dacca, and Madaripore in Backergunge.

The charge for boat-hire direct to Calcutta is from Rs. 20 to 25 per 100 maunds. But according to the distance of the local marts, it is from Rs. 3 to 7 for the same quantity if conveyed to Goalundo for transmission by rail.

From Backergunge country-boats convey the produce to Calcutta at a

cost of from 5 to 51 annas per maund.

Boats carry the fibre from Sylhet at the following cost for 100 maunds:—

					Tu	41.
From	Lukhan	to Bhoirub Bazar	•••		3	12
,,	. ,,	to Naraingunge	•••		7	8
"	Balalgunge	to Bhoirub Bazar	•••	•••	11	4
,,	,,	to Naraingunge	•••	•••	15	0

Jute is carried out of Maldah principally in boats at a cost of from 3 to 4

annas per maund.

In the other districts it is not likely that any exportations of the fibre can be going on, the quantities grown being barely sufficient for local consumption. Indeed it is more probable that they depend in a great measure on the supplies they can draw from the jute-growing districts; but, as I have said before, in the absence of reliable statistics the actual, or even the approximate, extent of this internal trade cannot be ascertained.

178. To what extent these different means of transport are resorted to, and the quantity of jute carried respectively by them, I have no figures to show. From the inquiry we made at the three principal marts of Serajgunge,

Naraingunge, and Madaripore, we learnt that during 1872 the quantities exported to Calcutta from those places were as follow:—

						Maunas.
Serajgunge, al	bout		•••	•••	• • •	3,500,000
Naraingunge,	,,			•••	•••	1,100,000
Madaripore,	,,	•••	•••	•••	•••	300,000
				Total	•••	4,900,000
Naraingunge,	,,	•••	•••	•••	***	1,100,000 300,000

179. No information has been received from most of the districts either of the quantity of jute produced or of the quantity exported. From the statements received of the total culturable area of each district and the area

devoted to jute, I have compiled the following table showing the names of the several districts arranged according to the extent they produced jute, their respective areas of arable land, the extent of land devoted to jute in the years 1872 and 1873, and the total yield, as affording some data for making an estimate as to what their exports may be. It is, however, not very satisfactory. After a careful study of the yield in different districts, I could not assume it at a higher figure than an average of five maunds per beegah; in some public records it is accepted at three maunds, and taking into consideration total or partial failures, accidents and varying crops from bad and good lands, it cannot possibly be more than what I have estimated it at. But calculated at that rate the estimated area given by the district officers afford a result which is inaccurate on the face of it, as will be manifest on reference to paragraph 182.

Table showing the respective areas of the culturable land in the different jute-growing districts, and their estimated annual yield.

					W	185	72.	18	73.	
DI	STRI	CTS.			Total area of arable land in acres.	Area under jute in acres.	Yield of jute in maunds.	Area under jute in acres.	Yield of jute in maunds.	REMARK.
Pubna					878,610	122,480	1,843,200	47,360	710,400	
Dinagepore			• • •		1,650,400	117,629	1,764, 135			
tungpore					1,600,000	100,000	1,500,000	37,500	562,500	
lymensing				•••	1,344,000	84,000	1,260,000	70,000	1,050,000	
ipperah			• • •		2,000,000	78,389	1,175,835	52,258	783,870	
Paramili					2,400,000	75,000	1,125,000	• 50,000	750,000	
ulpigorec					1,260,500	50,000	750,000	50,000	750,000	
4-Pergunnahs	•••				2,919,680	47,162	707,430	35,372	530,580	
lograh					411,001	46,599	698,985	35,419	531,285	
)acea	•				1,685,414	40,000	600,000	25,000	375,000	
looghly			•••		610,000	32,000	160,000	16,000	240,000	
Cooch Behar					600,000	25,000	375,000	25,000	• 375,000	
urreedpore.		•			859,771	16,666	249,990	6,219	93,735	
Soalparah					2,769,280	15,000	225,000	11,250	168.750	
Rajshahye				•••	1,280,000	14,333	214,995	6,000	90,000	
Backergungo	•••		•••		199,491	11,666	174,990	5,500	82,000	
fidnapore				•••	2,804,000	8,000	120,000	3,000	45,000	
underbuns of 2 and Backergu	4-Per ingo	gunna	hs, Je	ssore,	505,73 9	6,220	93,300	6,220	93,300	
essore	,			•	2,024,960	6,385	95,775	6,000	90,000	
uttack and Tri	ibu ta :	гу Мо	hals	•••	1,271,550	4,228	63,120	4,228	63.420	
Burdwan			•••		1,802,244	4,000	60,000	4,000	60,000	
Ioorshedabad	•••				1,106,782	3,666	54,990	3,666	54,999	
Joakhally	•••			•••	599,417	3,638	54,510	3,636	54,540	
Ialdah	•••				670,080	3,500	52, 500	3,500	52,500	
lowrah	•••				220,800	2,666	39,990	2,475	87,125	
arjeeling					16,462	1,500	22,500	1,500	22,500	
Nowgong	•••				820,480	1,457	21,955	1,457	21,855	
ooree	•••		•••			≥,000	15,000	1,200	18,000	
Tuddea		•				1,000	15,000	1,000	15,000	
lalasoro				. 	583,259	1,000	15,000	1,000	15,000	•
ylhet	•••					666	9,090	668	9,990	
Kamroop						310	4,630	810	4,650	
Durrung				•••	1,682,560	186	2,790	186	2,790	
hittagong					97,999	100	1,500	100	1,500	
Cachar		,		•••	1,530,360	55	825	55	825	
		7	Cotal		37,735,169	925,899	13,568,485	517,107	7,756,105	

180. The quantity of jute brought down to Calcutta by land or by water during the years 1870-71, 1871-72, 1872-73, according to the subjoined table appears to have amounted to 19,133,643 maunds. The table has been compiled from the fuller details given in Appendices F and G, pp. lxii, lxiii, with the exception of the figures in columns 3 and 8, and of those in the third entry in column 6, marked d, which have been estimated from the area of cultivation and yield shown in the district returns. Column 3 gives the estimated quantity of jute raised and exported from the Hooghly distrct, including Howrah, which sends nearly the whole of its produce down in country boats. As no return of the quantity of fibre brought down by the Eastern Bengal Railway during 1873 was available, I have assumed the imports through this channel for the year at 200,000 maunds less than the imports of 1870-71, to allow for the smaller area cultivated. In column 8 is entered the quantity imported from the 24-Pergunnahs, which brings its produce chiefly in carts. The outturn of the two districts of Hooghly and the 24-Pergunnahs has been calculated at an average of five maunds per beegah on the estimated area under jute in the years in question, minus the quantity locally consumed, which has been taken to be a half maund to each household. The average of produce per acre is in some districts higher, but to be on the safe side I have adopted a low figure.

L	2	3	4.	5	6	7	8	9	10
Years.	By registered country boats.	By unrecistered country boats.	By New River Steam Navigation Co.	• By India General Steam Navigation Co.	Eastern Bengai Rail- way.	East Indían Railway.	By carts.	Grand Total.	REMARKS.
1870-71	2,494,168	d 232,832	326,116	405,402	1,747,402	a 1,425	a 551,783	5,762,078	a. Calundar yeur 1871.
1871-72	3,216,843	d 467,664	278,322	770,884	2,903,315	ь 4,400	d 701,583	8,343,101	6. Ibid 1872.
1872-73	2,245,808	d 232,832	149,495	291,953	d 1,517,402	с 6,151	d 554,733 d	5,028,464	c. Six months of 187%.
	7,958,909	933,329	753,933	1,468,239	6,198,119	12,066	1,811,049	19,133,843	d. Estimated.

181. From the above synopsis it will be apparent that next to country boats the Eastern Bengal Railway has been very largely utilized in the transport of jute to Calcutta. The reason why the East Indian Railway is not more extensively made use of must be obvious. The only districts which grow jute on this line are Hooghly, Burdwan, and Moorshedabad; and of these Hooghly, including Howrah, sends its jute in country boats; and only the surplus produce of Burdwan and Moorshedabad, which yield jute to a very limited extent, finds its way down by this line of railway.

Returns do not show actual imports
Correctly.

Returns do not show actual imports
Coleutta, and the quantity of the fibre, both raw and manufactured, shipped from Calcutta to all foreign ports, including Madras and Bombay. The figures

as regards the exports are taken from Appendices H and L (pp. lxiv et seq.):—

1	2	3	4	5	6	7	8	9	10	11
				Exp	ORTED FRO	M CALCUT	TA.			
Years.	Imported into Calcutta, ac-		R	nw.			Manufa	otured.		REMARKS
t gano.	cording to last table.	Jute.	Rejec- tions.	Cuttings.	Value.	Gunny.	Value.	Twine and rope.	Value.	
		Mds.	Mds.	Mds.	Rs.	Picces.	Rs.	Mds.	Rs.	
1870-71	5,762,078	4,681,153	588,775		2,58,55,795	20,961,629	66,18,572	4,641	80,41	Total Rs.10,99,09,77
1871-72	8,343,101	7,204,929	229,458	1,271,622	4,17,04,356	27,286,889	68,68,937	16,730	1	Total value of
1872-73	5,028,464	7,993,210	383,472	1,781,281	4,23,49,620	32,767,930	83,07,629	7.071	51,485	factured)
TOTAL	19,133,643	19,879,292	1,201,705	3,052,903	10,90,09,771	S1,016,448	2,17,95,138	28,445	1,07,200	Grand / Rs.13,18,72,10

This table shows that against a total import for the last three years of 19,183,643 maunds there was an export of 24,133,500 maunds of raw produce, 81,016,448 pieces of gunny-bags or cloth, and 28,445 maunds of twine and rope; or nearly fifty per cent. over the quantity returned as imported into Calcutta from all the districts during the same period. And this is irrespective of the quantities devoted to manufactures for local consumption and wastage in course of manufactures for local use and exports.

183. This comparison discloses so great a disproportion between the imports and exports, that some explanation appears to be necessary. The Custom-house returns of exports

are unquestionable, and the returns of imports must therefore be taken as at fault, and this arises from the fact of large quantities of jute being brought down by country boats and carts mixed up with other articles of rural produce, and of which therefore no separate record is kept at the toll offices. It is only when a boat is laden exclusively with this fibre that the quantity of its cargo is recorded as such, while mixed cargoes are all reckoned by the name of whatever goods happen to be the largest in the invoice. We have no assurance also that the appliances are available, or made use of, for the correct admeasurement of the tonnage of boats passing the different toll-bars. Pack bullocks are also employed very extensively in most places for the carriage of jute, and no record is kept of these.

It might also be said to account for the conflict that the imports of one year into Calcutta are not, as a rule, exported out of it in the very same year, but that the shipments are timed to the prevailing rates of freight in this port, or to the ruling prices of the fibre in the markets out of India, and consequently the figures of imports and exports cannot always tally. But this can cause a difference in one year only, and is quite insufficient to explain the differences of three consecutive years to the extent they are manifest. Making every allowance, however, for these several causes, it appears to me that a large margin of difference is still left, which cannot be accounted for in the present state of our information regarding this trade.

184. I shall now describe the system of trade in jute in Calcutta. When a consignment of jute reaches Calcutta by rail, it is carted away to the godown of the consignee, generally an Aratdár, or commission agent, who sells it at his own discretion, charging godown-rent at three pies, and commission at the carted away to the pies, and commission at

at his own discretion, charging godown-rent at three pies, and commission at one anna, for every maund sold. The rent is charged for the total period the goods are stored, without reckoning the exact time, or making any difference for the occupation of the godown for a long period in cases where the sale is delayed. The Káinyás of Burrabazar, however, do not follow this custom. They charge from Rs. 10 to Rs. 35 for each godown per month.

185. If a consignment is coming by country boats, the consignee sends out men, called *Khálgastis*, who go beyond the Bamun-

Modus operandi of trade in Calcutta.

Imports by hoat.

Ghata toll-house, board the boats consigned to the firm, and discharge the prescribed tolls, which are

subsequently recovered from the consigner. When the jute is sold from the boats in which it is brought, a commission of only one anna on each maund sold is charged by the consignee. But if the consignment has to be kept in the *árat*, or commission agent's godown, three pies more are charged, as

in the case of jute brought by rail, on account of godownerent.

The Aratdár, or commission agent, to whom the consignment is made, acts as the seller's broker. The produce is, however, disposed of through the intervention of a regular broker, who acts on behalf of the intending buyer, who is either a native merchant engaged in selling jute in bales, or a European exporter. The European exporting firms are the principal buyers. Occasionally, but rarely, when the market is very low and the consignee is particularly anxious to close his account, the Aratdar himself becomes the purchaser; but this, when done, usually results in a benámí transaction.

When the fibre is approved of, and the terms are settled between the commission agent and the broker, a Jáchundár, or examiner of the quality of the fibre, is called in to examine the consignment in the buyer's interest, and to fix the quantity to be given over and above a maund in case the fibre be found

wet or inferior to sample.

Sometimes even before the bargain is settled, or the disposal of the consignment has been arranged for, the Aratlár, Advances by consignees. or commission agent, if applied to, advances to the consignee nearly the whole amount of the market value of the consignment, charging interest at 12 per cent. per annum. If the sale-proceeds exceed the amount of the advance and charges, the surplus is remitted to the seller, who, on the other hand, is required to refund the difference if the sale-proceeds fall short of the consignee's claims. Sometimes the Arutdárs advance money to the petty traders in the jute-growing districts, charging interest at 12 per cent. per annum on the sum advanced, on the understanding that they would send all they can collect to the *árats* making the advances. The debt is discharged out of the price realised by the sale of the jute they bring down to Calcutta. Sometimes a trader under advance sells his investment at a different árat or agency house; but in such a case no difference is made in the rate of interest, nor any claim urged for damages. The usual precaution taken is to seize through the Khálgastis the boat as it arrives at the toll-ghât, and recusancy on the part of the consigners, or of their supercargoes, leads to quarrels and appeals to the police: but this is not common.

187. In addition to the commission of one anna per maund, the seller has to bear the following charges in cash and in kind:—

In	cash.	-			
-			${ m Rs.}$	A.	Ρ.
Weighing for 100 maunds		• •	.0	2	0
Coolies for removing from boats		• •	• 0	6	0
" for placing on scales	• •	• •	0	3	0
" for removing from carts t	o godowi	ı	0	0	9
Tallyman		••	0	0	3
Brokerage to buyer's broker			0	0	3
Jáchandár on each cart-load	• •	• •	0	0	9
In	kind.				
T/ 1 1/		01	10	Λ	1

The time for the payment of the purchase-money varies from three days to one month in Calcutta.

188. It has been already stated that jute is prepared from only two species of plants, but there is no difference in the quality of their respective produce. In commerce,

however, marked differences are noticed in the productions of different places. These have led a variety of specific names being assigned to jute, of which the following are the most common, viz.—(a) Uttariyá, (b) Deswál, (c) Desi, (d) Deorá, (e) Náráinganji, (f) Bákrábadí, (g) Bhátial, (h) Karinganji, (i) Mirganji, (j) Jangipuri.

189. (a).—The first variety is by far the best. It is called Uttariyá, or northern jute, because it comes from the districts to the north of Serajgunge. The districts are Rungpore, Goalparah, Bogra, parts of Mymensing, Cooch Behar, and Julpigoori. This jute recommends itself to the trade by its possessing to the greatest extent those properties which are essentially necessary in fibre intended for spinning, namely, length, colour, and strength. It is sometimes, however, found to be weak, and it is never equal to the Desi and Deswal descriptions in softness. A superior quality of jute is produced, chiefly for domestic use, by the Hajung and Koch tribes of hill people. It comes into the market so late as November.

with the trade on account of fineness, softness, bright colour, and strength. It is stated, however, to have deteriorated to a certain extent within the last two or three years from the inefficient system of drainage in the new fields where it is grown. The fibre has become shorter and more rooty, and lately weaker also. Its name implies that it is the native jute of Serajgunge and its neighbourhood. Such of it as is grown on beels are called Bilan, and what is raised in churs are known by the name of Charua. But in Calcutta they pass under the generic name of Deswál. It first comes into the market in Srávana, that is about the latter end of July or beginning of August. At the present moment fresh consignments of this jute are more in demand than the medium Uttariyá fibre.

191. (c).—The Desi jute is the produce of Hooghly, Burdwan, Jessore, and 24-Pergunnahs. It is of a long, fine, and soft fibre.

If its defects, which are stated to be fuzziness and bad colour, were removed, it is believed by men experienced in the trade that

its market value would very much be improved.

192. (d).—The staple known under the name of Deorá comes from Furreedpore.

Deorá.

Deorá.

Deorá.

Deorá.

Deorá.

Deorá.

Its name is due to a village in Furreedpore where formerly there was a large mart. The village has dwindled down to insignificance now, but all the produce of the district, as also of the neighbouring district of Backergunge, is known by its name. The bulk of the fibre of this class is strong, coarse, black, and rooty, and much overspread with runners. This fibre is used for the manufacture of rope. Its value would rise if the dealers would refrain from pouring water on the prepared fibre, which they are said to do in order to increase the weight of their consignments. Occasionally small batches of this jute are met with of a very superior quality.

193. (e).—The Narainganji jute, which is brought from Aralia, Kurimgunge, and other jute centres, locally called Mokams, of the Naraingunge mart, is mostly the produce of the district of Dacca. It is very good for spinning, being strong, soft, and long. But from some neglect in steeping, the fibre, by the time it reaches Calcutta, changes its original colour into a brown or foxy tint, which detracts

from its value.

194. (f).—The finest description of Dacca jute is the Bákrábadí fibre, which is raised on the churs of the River Megna. It excels particularly in colour and softness.

195. (g).—The Bhátial jute is also the produce of the district of Dacca, and comes to Calcutta from Naraingunge. It is grown on churs, and is called Bhátial because it is imported to Naraingunge from the south or tidal side, Bhati, of that place. It is very coarse, but strong, and is to a certain extent in demand in the British markets for the manufacture of rope.

(h).—Karimgunji, in the Mymensing district, gives its name to a very fine description of jute which is grown there. Karimgunji. It is usually long, very strong, and of good colour, partaking to some extent of the nature of the Naraingunge or Dacca jute.

(i).—The produce of Rungpore, though large, is generally of medium quality, and the worst kind of it comes from Mirganji. Mirgunge, on the Teesta, whence its Mirganji. The cause of its inferiority has been stated in another part of this report (para. 96).

(j).—The produce of a portion of the Pubna district is known by the name of Jangipuri, so called from a small village of Jangipuri. that name. It is of short fibre, weak, and of a foxy

colour, most objectionable for spinning.

199. The fluctuation in the price of jute during the past three years has been remarkable. At Serajgunge (Pubna) superior Prices of jute at Serajgunge. jute, which had been sold in 1871 at Rs. 5 per maund, did not, during 1872, realise a price of more than Rs. 3-10 to Rs. 3-14 per maund (Appendix B, No. 37, p. xxvii). In the present year the prices of the different descriptions at the same mart are as follows (Appendix B, No. 36, p. xxvi) :-

Best Uttarviá at Rs. 3-4, 3-6, 3-8, and 3-10 per mannd. 2-12 to 3-2 Medium at " at " 1-10 ,, 2-2 Inferior ,, ,, 2-8 at ,, 2-6 at ,, 1-14 Best Best Charac Medium and inferior at ,, 1-14 ,, z-r at ,, 1-10 ,, 2-2 Charuá ,, ,, ,, 2-4 ,, 2-6

Bílan at " 2-4 " 2-6 "
In 1872 jute was sold at Naraingunge (Dacca) up to a maximum 200. price of Rs. 4-12 per maund; but in the present Prices of jute at Naraingunge. year the highest price realised has ranged from Rs. 2-8 to 2-12. The inferior kinds are selling as low as Rs. 1-2 and even Re. 1 per maund.

201. The prices at Madaripore (Backergunge), the seat of the Deorá jute trade, varied in the early part of 1872 from Rs. 2-2 Prices of jute at Madaripore. to Rs. 2-4 per maund. But in the present year it is said they have fallen as low as 14, even 12 annas, per maund (Appendix B, No. 51, p. xxxv).

In the Calcutta market the prices of the different descriptions of 202. fibre during the past and present years appear to Prices of jute at Calcutta. have been as follow:

				187	2.		187	3.
			Rs. A.	_/	Rs. A.	Rs.	A.	Rs. A.
Uttaryiá	•••		4 0	to	6 4		8 to	4 0
Deswal	•••		3 8	,,	4 0	1 1	4,,	3 0
Desi	•••		· 3 0	,,	3 12		0 "	2 8
Deorá	***	•••	2 0	,,	3 0		2 ,,	1 8
Nárdinganjí	•••	•••	3 0	"	4 8		0,,	3 8
Bákrábadí	***	•••	3 0	"	3 8	1 1	4 ,,	2 10
Jangipuri	•••	•••	2 12	"	3 4	2	υ,,	2 8

Appendix L comprises statements showing the prices of jute (1) in Dacca of 18 years, (2) at Scrajgunge for ten years, and (3) at Calcutta for seven years.

In some parts of the mofussil, such as Dacca and Mymensing, 203. there are jute-screws whence ready made bales Preparation into bales. are sent down; but these are consigned direct to English firms; they never pass through the hands of Aratdárs. Of the raw material, which arrives in the form of drums or hanks, a small portion is used for local consumption and manufacture; the rest are made up into bales in the different screw-houses in and around Calcutta. The charge for pressing jute in a screw worked by manual labour is Re. 1 per bale of 300th each, and Rs. 1-5 to 1-7 per bale of 350th. In these presses the lower portion of the jute, which is hard and entangled with the bark and woody matter and, therefore, cut off from the clean fibre, cannot be pressed. This portion is technically

called "jute-cutting."

The charge for preparing bales in screws worked by steam is Rs. 1-8 per bale of 350th of jute, and Rs. 1-12 and Rs. 2-6 respectively per bales of 350th and 400th of jute-cuttings. A list of the jute-screws now in work in Bengal is given in Appendix M, pp. lxxx and lxxxi.

204. It has been already shown (ante, para. 55,) that the export to Europe of jute as jute commenced in the tenth decade of the last century. It is all but certain that before that time it was also sent, but under the name of hemp or flax. From 1804 the exports gradually increased, but the shipments were generally so insignificant that no separate account of such exports was kept in the Custom House. In the year 1828-29 a separate head was assigned to it in the Custom House records, when it came up to the extent of 496 maunds. In the following year the export rose to 2,422 maunds, and ever since it has gone on increasing till it reached the large figure of 7,255,689 cwts. in 1872-73. I annex the following table to show the rate at which the trade has steadily increased:—

1823-29 3 1829-80 1,7 1831-32 23,8 1832-33 25,3 69,0 1833-34 45,4 1834-35 22,4 1835-30 12,3 1836-37 165,7 1837-38 90,8 337,4 81,7 1840-41 03,7 1841-42 11,1 1842-43 215,0 1843-44 25,1 1843-44 215,0 1843-44 215,0 1843-45 25,0 1843-46 29,1 1845-47 192,8 1847-48 289,8 1,170,2 1849-50 391,8 1850-51 82,7 1851-52 583,3 1852-53 348,8 2,196,7 1853-54 50,8 1853-55 78,7 1853-55 78,7 1853-56 880,0 1853-57 67,2,3 1857-58 78,7 1860-60 7,0						Average of five years' quantity.	Average of five years' value.
1820-80 1.7 1830-31 7.6 1831-32 23.8 1832-33 25,3 59,0 69,0 1833-34 45,4 1834-35 22,9 1835-30 12,4 1836-37 165,7 1837-38 90,8 337,4 81,7 1839-40 81,7 1840-41 03,7 1844-43 215,0 1843-44 215,0 1844-45 225,1 1845-46 213,4 1846-47 192,8 1846-47 192,8 1840-50 301,8 1850-51 582,7 1851-52 585,3 1852-53 348,8 1853-54 508,6 1854-55 880,0 1856-56 880,0 1856-57 673,3 1856-58 785,7 1860-61 1,093,4 1861-62 1,310,3 1860-63 1,303,1 1862-63 1,303,1	. Qrs. Lì	I	Ls. A	۸.	P.	Cwts.	Rs.
1830-81				14	9	h	
S31-32 23.8 25.3 69.0 S33-34 45.4 45.4 834-35 22.9 835-30 12.3 836-37 165.7 837-38 90.8 337.4 S36-39 107.5 849-41 65.7 841-42 117.1 842-43 215.0 585.2 S44-45 215.0 23.4 24.5 25.0 845-40 21.3 846-67 22.5 845-40 21.3 846-67 347-48 22.5 348.8 849-50 337.8 849-50 337.8 849-50 337.8 851-52 535.3 852-53 348.8 2.196.7 348.8 355-54 568.7 572.3 855-56 856-57 673.3 857-58 3758.7 785.7 78	6 2 0 7 3 0		4,169 2,221	8	0	11,8008	31,2744
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12.4 136-37				3 10	9	h	
837-38 90.8 838-39 107.5 839-40 81.7 840-41 08.7 841-42 117.1 842-43 215.0 843-44 215.0 844-45 259.1 845-47 112.8 947-48 289.8 1,170,2 1,170,2 849-50 391.8 850-51 582.7 851-52 535.3 852-53 348.8 2,196,7 2,196,7 853-54 508.0 857-58 785,7 857-58 3,554,1 858-56 860,0 860-61 1,093,4 861-62 1,310,3 862-63 1,303,8	6 0	5	16,919	0	0	67,483	1,66,491
\$37,4 \$39-40 \$39-40 \$31-41 \$40-41 \$41-42 \$117,1 \$43-43 \$215,0 \$585,2 \$44-45 \$34-45 \$45-46 \$34-47 \$347-48 \$215,0 \$37,8 \$49-50 \$31,170,2 \$49-50 \$555,2 \$555,2 \$555,2 \$555,2 \$652-53 \$555,2 \$555,3 \$555,2 \$555,3 \$555,2 \$555,3	0 0 0		86,66 7 88,142	0	. 0	}	
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867-68 \{ 2,411,3 \\ 69,8			3, 1 80	ŏ	ŏ	J	
13,140,5	0 0 0	12.9	5,920	0	0		

Year.			Quantity.			Value.			Average of five years' quantity.	Average of five years value.	
			Cwts.	Qrs.	Lb.	Rs.	A.	P.	Cwts.	Rs.	
1868-69			{ 3,208,718 404,119	0	0	1,92,67,141 10,17,420σ	0	0	h	,	
1869-70			\$ 3,112,250 327,225	0	ŏ	1,02,02,040 11.04.744c	0	0	•	•	
1870-71			3,343,691 420,545	. 0	0	2,39,12,442 19,43,353 <i>c</i>	0	Ŭ 0 0	4,858,1623	3,01,00,223	
1871-72			8,146,378 908,302 163,899	0	0 0 0	3,70,04,116 38,78,401 <i>d</i> 8,21,839	0	0			
1872-73			\$ 5,709,436 1,272,344 278,909	0	0	3,77,23,623 36,30,735 <i>d</i> 9,95,202	0	0 0 0]		
			21,290,814	0	0	1,50,50,116	0	0		-	

c. Rejections. d. Cuttings.

Originally the exports were destined almost exclusively for Great 205. Britain, Bombay, and North America, taking only Places to which exported. very small consignments. The exports to the firstnamed place rose in ten years from 496 maunds in 1828-29 to 107,582 cwts. in The three successive decennial periods from the last-named date show 337,886 cwts. in 1848-49, 317,999 cwts. in 1858-59, and 3,208,718 cwts. in 1868-69. In 1872-73 the exports to Great Britain amounted to the enormous amount of 5,709,436, besides cuttings and rejections, of which a total of 1,546,253 cwts. were sent to that country. The American demand has risen from 1,797 maunds in 1831-32 to 307,718 ewts. in 1872-73, in addition to 1,158,895 ewts. of cuttings and rejections. America is also one of the largest, and was for some time the largest, customer for jute-made bags (gunny-bags); but of that details will follow in the paragraph on the trade in gunny-bags (para. 235). France stepped into the mart for the first time in 1836-37, when its requirements amounted to only 3,072 cwts., which in the following year fell to 309 cwts. The first heavy demand made by it was in 1845-46, when it took 9,708 cwts., followed in the next year by 21,048 cwts., ever since which exports to that country have gradually, but not without some vaccilation, increased: they amounted in 1872-73 to 137,126 cwts. Exports to Bombay have increased from 1,095 maunds in 1831-32 to 158,073 cwts. in 1872-73. The other ports to which jute is sent are Amsterdam, Australia, Cape, Ceylon, China, Italy, Madras, Pegu, Straits Settlements, and Trieste. Details of the amounts of jute sent annually to these different places will be found in Appendix II, pp. lxiv to lxix.

206. The question of freight naturally comes in connexion with exports, but as no information has been required by Freight. Government regarding it, and to a great extent it is

regulated by circumstances unconnected with India, I shall pass it by.

207. As jute is almost invariably taken by the ryot for sale in hanks made up into loose bundles, the opportunities for adulteration are very few, and detection is comparatively easy.

Nevertheless the great and rapidly-increasing demand for the fibre has of late led many dishonest cultivators and traders to resort to various forms of adulteration to add a fictitious value to their goods. The most prevailing practice is to mix fibres of inferior quality in the bundles of superior produce; but, as observed by Mr. Nolan, the price is considerably modified when the purchase comes to be examined, and the fraud therefore is not generally very successful.

Another form of adulteration is by water. This is done to add to the weight of the fibre. Water is either poured on dry jute just when about to be taken to the market, or allowed to be imbibed by exposure to the night dews, or by making up the hanks into bundles before the fibre is throughly dry after the retting process.

Baboo Ramsunker Sen, the then sub-divisional officer at Kishoregunge, says that even "clods of earth are introduced within before the fibre is coiled up into the mora bundles."

Writing from Jessore, the same officer says that kakta, or the fibre peeled off without previous steeping, is used to adulterate the better sorts of jute.

Mr. George, of Dacca, has given it as his opinion that the "adulteration of jute is universally practised, as bad jute is mixed with the good inside the bundles." The traders of Calcutta have found rotten fibre mixed up in the drums.

Of fibres of other than the true jute plant, which are mixed with jute, the Mestá (Hibiscus cannabinus—ante, para. 12,) and the Dhenros (Abelmoschus esculentus—ante, para. 14,) are the only ones whose names have been mentioned to us. The Mestá is extensively grown in the deorá districts, and its fibre forms a large proportion of the so-called Deora pát, which finds its way to Calcutta from the Gopalgunge mart in Furreedpore. It is a strong fibre, and has a fine colour, closely resembling jute; but it is not quite so soft to the feel as jute, and is otherwise reckoned to be inferior to it. In other districts Mestá is mixed up with, or bought and sold as, jute without any fraudulent motive.

The fibre of the *Dhenros* is brought in very small quantities into some of the jute markets of the Mymensing and Dacca districts, where it is also sold as jute. It is a very inferior article, and is deliberately used as an adulteration for

fraudulent purposes.

The general character and appearance of the two fibres are such that neither the mahajans nor the merchants ever think of assorting the *Mestá* and the *Dhenros*; and it requires an experienced eye and hand to detect the spurious fibres when mixed up in small quantities in the hanks and drums of the roal jute.

208. Taking into consideration the certainty of short food-crops in the present year, it is not at all improbable that the ryots will grow as much of the early rice as is possible in the approaching year, appropriating thereby, to a greater or less extent, the land hitherto sown with jute. It is, I believe, quite reasonable therefore to anticipate a comparatively small outturn of fibre in the ensuing year.

209. But notwithstanding this transient gloom in the prospects of the jute cultivation, the operations of the trade are active and extremely promising. The confidence of the

public in the steady and rapid progress of trade in this article is also

Share. Paid up. Closing prices. Names of Companies. 135 to 136 Baranuggur Jute ... 100 100 100 40 54 " Budge-Budge Jute 285 " 290 200 200 Calcutta Jute Mills 1,000 1,000 1,900 ,, 1,950 Gouripore ...

great. I see from the share list in the public prints of the 1st December that the shares of the jute Companies noted in the margin are selling at premia considerably in advance of former quotations. Indeed the trade has laid so deep a hold on the public confidence that in the case of the Seebpore Jute Company, just formed, double

the number of shares to be allotted were subscribed for in less than a week after the scheme was set afloat.

210. Taking only the present jute-growing tracts into consideration, the prospects with reference to area of present jute-tracts.

Prospects with reference to area of present jute-tracts.

Prospects with reference to area of the cultivation in time to come may be regarded as most hopeful. The sixteen districts which include the bulk of these tracts comprise a

total area of 22,498,477 acres of arable land, and out of it only 876,324 acres were devoted to jute in 1872 according to the district reports, but probably somewhat more. Leaving the excess out of consideration, as its extent cannot be ascertained, and arguing on the figures at command, were the demand for jute to double in course of the next ten years, it would only take up about one-thirteenth of the arable area, leaving the remaining twelve-thirteenths for cereals and other crops. This estimate does not include the reclaimable waste lands in the districts under notice. Their extent is vast; and as these are being rapidly brought under the plough, in reality jute will not trench upon the present fields for the food-crops to the extent shown above. Then, there are several districts where jute is not grown to any large extent now, but which have taken to its culture, and are gradually extending their area, and these will in a great measure supplement the present sources of supply. Moreover, during the time the reclaimed lands will take in occupying the place of those fields which will

be alienated from the food-crops by jute, those districts which cannot grow jute can easily raise various food-crops, and these will in the usual course of trade feed the jute-growers, whose earnings by jute would be most welcome to them. Doubtless in a country governed by custom all changes are repugnant, and a transition state of agriculture and commerce must at first produce some disturbance of the usual order of things; but under the incentive of gain, so predominant in the human breast in every part of the world, and which is of all others best able to ride rough-shod over custom, matters will settle into their new course without any appreciable inconvenience.

211. This opinion is shared in by almost all the district officers. With the outturn of 1872 in his mind the Collector of Dacca writes: "The amount of jute grown as yet is not sufficient to appreciably affect the rice market,

nor would it do so were double the amount grown."

Mr. Nolan, the sub-divisional officer at Serajgunge in *Pubna*, says: "This part of the country is but little exposed to the danger of famine, and I believe that even if it were more liable to that calamity, it would be an advantage rather than otherwise to have a large proportion of the soil planted with a crop which is not grown for food. The jute might succeed where the rice failed, and then the ryot would have something to fall back upon."

"Every man," says the district officer in Rajshahye, "will exert himself to raise the article which has a growing demand and a ready market, and brings him a handsome return. The gains of past years will," he goes on to say, "keep the cultivators in their pitch of activity for some time to come; and they will go on with the cultivation so long as they will find it remunerative."

In Julpigori, which, as so often remarked, is described by the district officer as "essentially a jute-growing district," the cultivation of jute is on the increase. "It is a crop easily cultivated and returning good profit."

In the Satkhira sub-division of the 24-Pergunnahs, the sub-divisional officer writes: "There are, however, so many extensive tracts of low-land lying fallow for want of capital and labour, that jute may be almost indefinitely increased without driving rice from the sub-division for want of land." And this remark, true as regards a small area in one jute-growing district, holds good also in respect to the state of things and the prospects of the cultivation in those vast tracts in other districts in which jute has hitherto been grown, or in which it may hereafter be successfully grown.

In the report from Purneah, I find it stated: "I do not think that the cultivation has had the effect of decreasing the amount of cereals or other crops grown, but has simply been the cause of more land being brought under cultivation."

Districts where jute is grown in small quantities now, but where the cultivation may be extended.

Burdwan.

Districts where jute is grown in the district officer says: "If it be explained to the ryots that jute has engrossed the attention of Calcutta merchants as a lucrative article of commerce, they will readily employ more lands for the cultivation of this crop than they have hitherto done. If the people utilise the alluvial soil of the Damoodar and Dalkishore by cultivating jute, I think the experi-

vation of this crop than they have hitherto done. If the people utilise the alluvial soil of the *Damoodar* and *Dalkishore* by cultivating jute, I think the experiment will prove lucrative to the cultivators. But the people residing in these quarters are so indolent or ignorant, that they have not the remotest idea that such a measure will prove beneficial to them."

213. "The plant is already grown as an edible in small quantities all over the district" of Beerbhoom, and though "the soil of almost two-thirds of the district is a poor soil," "the eastern third," writes the Collector, "is alluvial, and I imagine that jute would grow there, as well as in the 24-Pergunnahs, for instance." "Patshak," he continues, "is grown in the beds of old tanks of which the water has dried up, and also simultaneously with sugarcane." "Very little labour is required for the cultivation of the plant."

It may also in case of emergency be more largely grown in Bancoorah, where almost under similar conditions of soil and climate it is already cultivated for culinary purposes.

214. In Midnapore, where the soil of the Bur Mehals is composed of deep alluvium, the cultivation can also be greatly extended at need.

Jute is already raised in the Bongong and Ranaghat sub-divisions of *Nuddea* for local consumption, and at Coomarkhali for exportation. Here also the cultivation, which is now very limited, may be largely extended.

Ditto Churs of eastern districts and patna.

Ditto Churs of eastern districts and patna.

Ditto Churs of eastern districts and to be admirably adapted for the growth of jute; and, although the soil and climate of the districts of the Patna Division, except Tirhoot, are represented to be uncongenial to the plant, I cannot but think that the fine decarás in the

Ganges might be utilized with advantage, especially as the cultivation and preparation of the fibre would be carried on in the rainy months, when the hostile influence of the dry climate would to a great extent be neutralised.

Jessore," says the Statistical Deputy Collector, "is that in the northern divisions of the district the ryots' attention is engrossed by the two most important manufactures of indigo and date-sugar. Nearly all the available land not occupied by food-grains is taken up with indigo, and the ryot finds it more profitable to plant date-trees close to his homestead: * * * On the banks of the Kumar, the Nobogonga, and the Gorai, also called the Modhoomati, the cultivation may, no doubt, increase, for in the adjacent marts of Modhookhali and Syedpore, situated in the Furreedpore district, close to the last mentioned river, a large trade in jute is carried on, in which some merchants of the Jessore district take an active part."

The productive powers of these provinces were very recently put to the proof, but only partially, by the demand for the fibre which led to the extraordinary extension of cultivation in 1872; and the result was in every way satisfactory. Though only a very small proportion of the whole arable area beyond the ordinary extent of the cultivation of former years was then brought under jute, the supply of the fibre, even without greatly affecting the price of food-grains, so far exceeded the demand, both for local consumption and for the markets out of India, that jute absolutely became a drug in the local centres of

the trade.

217. In the province of Orissa, where jute is already grown, but to a limited extent, and only for local use, the area of cultivation can also be very considerably entered, if the pecuniary interests of the ryots could thereby be bettered. In the Gurjat estates the extent of land available for the purpose is immense, and enterprise is alone wanting to utilize it.

The Assistant Superintendent of the Tributary Mehals writes: "The jute cultivation is not considerable in the Gurjats, or in any part of this country, as the people do not know the use and profits generally derived from this trade, and consequently take no care for its cultivation. It is not likely to increase until the people understand the benefit they will derive from it. The cultivation has rather decreased in some shape than what it was ten years ago. Another reason for its decrease is that the people of the Jungle Mehals do not take much care for the improvement of the cultivation, as they can do very well without it by the use of the bark of various other sorts of trees growing in the jungles."

218. The vast unreclaimed tracts in the Sunderbuns offer also very eligible fields whence jute can be drawn almost to any extent to meet the necessities of an enlarged demand at any future time. Even with the saline water and with the salt-

^{*} Pergunnah Buldakhal, which is described by the Collector of Tipperah as " an aggregation of churs," already produces the finest jute in that district.

impregnated soil of these parts, the plant thrives luxuriantly in the few grants where it has been tried, and there is no reason to believe that it will fail on land properly selected in this quarter.

219. The province of Assam, with its humid climate and moist soil, offers another field to jute in its vast tracts of unreclaimed land. Its sparse population, its incom-

reclaimed land. Its sparse population, its incomplete system of communication, and its want of capital, are the present drawbacks to its progress; but with the impetus of an extraordinary demand for the fibre, mercantile enterprise will bring about the means for removing these difficulties. As jute is not likely to realise so high a price as tea, no such system as has been introduced for tea may be found practicable, or considered expedient; but others may be easily devised. As jute is a crop which requires less care than rice—and rice is largely grown in the province—local industry would suffice to bring a very large quantity of the fibre into the market, if only the people could be roused to activity by the certainty of largely remunerative returns.

Even now "almost every native agriculturist and householder," writes the Deputy Commissioner of *Nowgong*, "has a small plot of land of not more than $2\frac{1}{2}$ cottahs in area at the most, and generally of from $1\frac{1}{2}$ to 1 cottah of land, for jute near their houses." * * The people cultivate jute in their leisure hours, without taking that interest in it which they do

for their vegetables.

A clear understanding of gain is alone wanting to the development of the cultivation in *Kamroop*, where jute is already grown to a small extent, and where

it can apparently be grown to any extent.

In Durrung also jute is already grown, but only to a nominal extent, and for local consumption. The Extra-Assistant Commissioner of the Mungledye sub-division is of opinion "that jute will grow well and thrive with but little care and attention in this sub-division."

It is likewise grown in Seebsauger, but only for use as a pot-herb; and if inducements were held out, doubtless it would be cultivated for its fibre also.

As regards Luckhimpore, jute used to be largely imported into the district from Bengal till within the last two or three years. "Now, however," writes the Assistant Commissioner, "the local supply has so largely increased, I am told, as almost to shut out the foreign article altogether. The import last year from Serajgunge (the only mart which imports to this district) is said not to have exceeded some 20 or 30 maunds. As the soil of Luckhimpore, as of Assam, generally is, I believe, eminently adapted for the growth of the plant, it seems highly probable, now that its importance as a staple product is beginning to be known, that we shall before long see Upper Assam exporting instead of importing the fibre."

220. The Deputy Commissioner of the Garo Hills writes: "I dare say the Ditto, Garo, Naga, Khasi, and Jyntoeah Hills, and Cachar.

Ditto, Garo, Naga, Khasi, and Jyntoeah Hills, and Cachar.

Jute plant would grow very well in the valleys between the low hills, and when the Garos are somewhat more advanced in civilisation I hope to introduce its cultivation into this district." Should this experimental cultivation be successful, a like attempt might perhaps be made in the valleys of the Naga Hills, and also of the Khasi and Jynteah Hills.

In Cachar, where it is to a small extent already grown for local consump-

tion, the cultivation can be greatly extended, if necessary.

221. New ground for an extended cultivation may also be taken up in the Ditto, Chittagong.

Hill Tracts of Chittagong, where "the soil," says Captain Lewin (Hill Tracts of Chittagong, pp. 4 and 6), "is composed for the most part of a rich loam, and where in many parts may be found large and rich alluvial plains." Jute, known in those tracts as narish, is already grown there for use both as a pot-herb and as a medicine.

As the jute is already cultivated in these hills, I am disposed to believe it likely that it could be grown, if it is not now grown, in Hill Tipperah also. But I have no information regarding this tract to guide me in arriving at a positive

opinion.

222. The soil and climate of the districts of the Chota Nagpore Division were believed to be generally unfavorable to the growth of jute; and the cultivation was reported to be carried on in the districts of Maunbhoom and Singbhoom, and there it was raised to a very small extent, and for local consumption only. But I find on inquiry that in Loharduggah the plant which yields the jute proper can not only be grown, but that it already grows wild and profusely in different parts of the district. Mr. Peppé, the Sub-Deputy Opium Agent at Chota Nagpore, wrote, before the wild plant was identified with the real jute plant, as follows:—

"In these portions of the district below the plateau, such as Palamow, Touri Birri, and the five pergunnahs, there is no reason why it should not

succeed; whether it would pay I am not prepared to answer.

"On the plateau itself it could not be cultivated with success without manuring well; and if such was the case it would not answer, although it might be found useful on a small scale."

The only drawback at present is the want of roads; but this would soon by supplied under the pressure of advancing trade.

223. Should the demand for jute at any distant date outgrow the productive powers of the Bengal provinces, there would readily be found new and ample sources of supply in the untried tracts of country adapted to the growth of jute in other provinces of India.

Beginning with the Central Provinces, Sumbulpore, which within the last few years has been detached from Bengal and attached to the Central Provinces, may be largely utilized for the growth of jute. The settlement officer of the district says: "Jute is grown in nearly every village in this district, but not for its fibre, as the people are not aware that it is a fibre-yielding plant. It is grown here in small quantities in the sugarcane fields, and is only known by the name of Nalila; but it never exceeds a height of from two to two-and-a-half feet, because as soon as it is a foot or 18 inches high, the leaves are plucked and made into sag, or spinage, for which alone it is grown."

"If the people knew that the Nalita yielded as good a fibre as the Ambari or Kaorea (in Oorya), which also is grown partly for its leaves, but more especially for its fibre," * * * " they would probably grow it also. I should mention that only the species Corchorus capsularis is grown here; and up till now I was not aware that the Nalita sag of this district was one of the varieties of the article styled jute in commercial language, as it is only looked upon as a

vegetable, and such I took it to be."

As far as the inquiries directed by the local Administration have yet proceeded (see Reports for 1861-62 and 1862-63), jute does not seem to have been found growing in any other district; but as the soil in the country comprised in the Central Provinces is to a large extent composed of a rich loam, it is quite probable that the cultivation of jute could be successfully introduced there, especially in those vast tracts of waste land which have yet to be brought under tillage.

224. British Burmah would next seem to present another vast field in which this valuable fibre can be raised. According to the Administration Report for 1869-70, "the climate of the province is warm, moist, and depressing." "The soil throughout Arakan is alluvial, mixed in places with sand." "The soil of the delta of the Irrawaddy is very rich, and where cultivated gives a high return." "The soil in the northern portion of the valley of the Irrawaddy was reported to be well suited to the growth of cotton; but rice is the principal cultivation." "The soil of the upper portion of the Sittang valley is clayey, mixed with a good deal of sands." "The soil of the northern portion of Tenasserim is alluvial, but not much cultivated, though cultivation is spreading."

Here are the conditions of both climate and soil specially required by the jute plant though it is known to grow well in almost every description of soil. And the Chief Commissioner of British Burmah says that though "no jute is cultivated

in this province, it grows wild." In Akyab both the C. capsularis and the C. olitorius are found indigenous; but they are cultivated for their leaves, which are used as pot-herb. The plants also grow wild in the hill tracts of that district, where the leaves are used as an edible. In Ramree too they are raised for local consumption. They are also cultivated as pot-herbs in Sandoway, but they are not known to be found growing wild there. From a communication since received from the Deputy Commissioner of Rangoon, I find that both C. capsularis and C. olitorius, known under the names of Pelaw Yine and Pelaw Yee, are grown in small quantities in the Rangoon district, where they are "found in old toungyas, and more frequently two or three bushes are to be found planted close to persons' houses. They make use of the leaves for putting in curry, and do not apparently use the plant for any other purpose." In the Tennasserim province the C. capsularis is found wild, and the C. olitorius is cultivated in small quantities for use as a vegetable.

• 225. In the North-Western Provinces it is believed that the Terai at the foot of the Kumaon Hills may be found a suitable field for jute, the soil and climate both being there suitable from excess of moisture. In an interesting paper by Lieutenant Burgess, published in the Selections of the North-Western Provinces Government, Part XVIII, p. 382, I find it stated regarding the Terai: "The natural moisture of the soil and the heavy dews, combined with its richness, make it exceedingly desirable land for cultivation, little labour bring required for tillage." The tract being unhealthy is but sparsely populated, and it is said to bear a "gigantic reed 30 feet or more in height," from the fibres of which the string used for stringing charpoys is made.

226. "The plains of the Punjab," it is said in the Administration Report for 1871-72, "may be described as vast expanses of alluvial clay and loam." * * "The alluvial plains thus constituted are intersected by the great rivers of the province." * * "In the sub-mountain portions vegetation is most luxuriant; lower down the rivers exercise great influence over the soil; in the immediate vicinity of the stream are tracts enriched by its alluvial soil and fertilized by its inundations." These are conditions favorable to the jute plant, and I find from Dr. Stewart's "Punjab Plants" that both the C. capsularis and the C. olitorius are found to be growing wild in the province; and systematic cultivation would doubtless contribute to the production of a quantity of fibre sufficient to help in meeting any future extraordinary demand in the markets out of India.

The Agri-Horticultural Society at Lahore have recently been supplied

with jute seed to be cultivated experimentally in their gardens.

227. In Bombay, I find it said in correspondence with the Government of that Presidency, that "jute is not cultivated, " at all events not to any extent, to make it of commercial importance; nor is the Government aware of its having been grown at all in this presidency, and that all jute received into or exported from Bombay comes from Calcutta." But in Dr. Birdwood's "Catalogue of Economic Products" in that presidency, I find that both the C. capsularis and C. olitorius are grown there for the fibre, which is correctly designated in the work as jute. There seems to be no reason therefore why Bombay should not on an emergency be made to contribute its quota of the fibre towards any future excessive demand.

228. As regards Madras, Dr. Hunter writes of jute "among other fibres as appearing to hold out the best prospects of proving remunerative * * as easily cultivated, * * and growing in most parts of the presidency * *. The demand * * is steady, and would probably increase if the fibre were prepared of a good quality." (Selections from the Records of the Madras Government, No. XXIII, p. 158.)

The Chamber of Commerce at Madras, writing in October 1854, said: "It is but a few years ago since the greater part of the jute used in Madras and in other parts of the presidency was imported from Bengal, and at which time the quantity grown locally was very limited. There is now, however,

nearly sufficient produced to meet the requirements of the country, and some has even been exported, from which it is to be expected, as the cultivation has been on the increase, and as there is an ample field for its further extension, there will be in time a considerable export trade in this product. The local consumption of jute is large, and before it can form a staple of export of any magnitude, the home demand must be supplied by home growth."

From a communication just received from the Government of Madras, I find that the two Corchorii are not cultivated in the more southern parts of the

Madras presidency, at least so far as their present information extends.

In the northern part, however, extending from Guntor in the Kristna district to Ganjam, including Coconada, Calingapatum, Chittavalsah, or Bimlipatam, and Gopalpore, the plant is cultivated to some extent, and manufactured by native weavers into rope and gunny-cloth for local use.

229. Reference has already been made (ante, para. 47,) to the seeds of the so-called China hemp obtained from Canton by

China jute.

So-called China hemp obtained from Canton by Dr. Roxburgh, which turned out to be no other than the jute of Bengal. Mr. Blechynden, the able Secretary of the Agri-Horticultural Society of India, obtained in 1855 some seeds of the said hemp from Canton, and found the conclusion drawn by Dr. Roxburgh to be correct. The following brief note has been furnished to Government by Messrs. Jardine, Skinner & Co. of Calcutta, who had obligingly written to their China correspondent's agent at Canton on the subject:—

"In reply to your letter of the 4th ultimo, I am sorry not to be able to give a very reliable account about jute. The Chinamen mostly say the common hemp is the same as the Indian jute. There are two kinds of hemp; the one grown near Canton is called Hwangma, or yellow hemp, and is of a coarse description, usually used for making ropes; it is most grown in Sanhwi, about 20 miles from Canton, but it is not an article of export from this part. The finer hemp is called Lookma, or green hemp, and is most probably the jute of Bengal. This is not grown near Canton (although an old book quotes it as being grown here in small quantities, the Chinese deny it), but comes from the Hankow districts, and is used for making grass-cloth, &c. The descriptions and pictures given of the jute plant exactly compare with the Chinese hemp. I am sorry I can get no samples; but this is not the right season of the year."

As the quantity produced of the Chinese jute is not apparently large, and the Chinese have to import jute from India, the extent of which is annually increasing, no competition need be apprehended from that quarter for at least

some time to come.

230. Competition of a serious kind, however, may be apprehended from North American In some of the States of the North American Union the jute plant has been very successfully introduced, and has already been found to be more remunerative than cotton. It is very likely that in a short time the bulk of the requirements of the United States will be supplied by home-grown fibre, and the demand on India will fall off—as regards gunny-cloth it has already fallen off—and in time American jute will be in a position to compete with the Indian produce in the markets of Europe. Some details regarding the state of jute cultivation in America are given in Appendix N (pp. lxxxii to lxxxv).

231. All the various forms into which jute is converted by native manufacture resolve themselves into three, viz. cordage, cloth, and paper, which, under different conditions

and circumstances, assume very different names.

232. Of cordage the range is great, from the thinnest twist, such as is fit for weaving, to thick ropes for hawsers for large boats; the intermediate grades being twine and cords of various degrees of thickness, adapted to the different economic purposes for which such articles are required. According to Babu Ramcomal Sen (Transact. Agri-Horticultural Society, ii, 9, pp. 79 and 80), jute is made into thread or twine in three different ways:—

"First.—A small bundle of fibre is either tied at some elevation to a post, or suspended from some part of the roof. Filaments sufficient for the required

thickness of the thread or twine are detached from the lower part of the bundle, and being tied to a dherá or reel, are spun from the left to the right hand till sufficiently twisted. The thread or twine thus made is first wound round the body of the reel and afterwards made up into a ball called lote.

"Secondly.—The next method is by the use of an instrument called takur,

which is turned upon the thigh, or the sole of the feet.

"Thirdly.—The fibre is also spun by a machine called Ghurgurra, similar in principle to the contrivance used by seamen in spinning yarn for use on

board ships."

The first two methods are adopted for twine of moderate thickness, which is intended for use as cords, either in the shape in which it is first produced, or subsequently doubled, trebled or made manifold, to give the necessary thickness to the cord: coarse cloth is also made of the twist produced by this The second method is especially adapted for making twist for weaving The third is best suited for thick ropes, which are sometimes made fine cloth. from twelve to twenty-fold in thickness. The twelve-fold ropes are mostly used for tying jute bales.

Gunnycloth is made of very different qualities to adapt it for the various purposes for which it is used. Varieties of gunnycloth. venience of description, the different varieties, how-

ever, may be arranged under three heads; first, such as are thick and close-woven, like good canvas; second, such as are thin, dense and close-woven; and third,

such as are thick, coarse and loosely-woven.

Of the first, or thick, close-woven gunny, which has the generic name of gun, tát, and chat, there are nine varieties, named Thick cloth, after the different marts from which they are im-Their names are:—Pachágore, Amrabáti, Ráyiganje, Deviganje, Dulatganje, Jayaganje, Sáhebganje, Náráyanganje, and Fáteyá. The best of these is the Amrabáti, which for fineness and density of texture, and uniformity of make, far excels the others. All these varieties, however, have their superior, middling, and inferior qualities, and these, in trade language, are known as Nos. 1, 2, and 3. No. 1 is sufficiently dense, for packing rape-seed, linseed, poppy-seed, and other small grains, as also sugar. It was formerly known by the name of chikungani; but that name has now been assigned to first quality gunnies prepared in European mills. No. 2 is fit for bags for rice, vetches, and other seeds of a larger size than linseed and the like. No. 3 is narrower than the last, but it is purchased largely by the Nákhodás for packing rice, and also for the outer covering of sugar when double bags are used, and this is frequently the case.

235.The thin, close-woven fabric is common in parts of Maldah, Dinagepore, and Rungpore only, and also among the Coch Fine cloth. and other aboriginal tribes near the foot of the Himalaya, where it is used as a garment by the poorer classes of women. known by the name of mekli by the people of the northern districts generally; but in Darjeeling, it has the local name of dhokrá. In Cooch Behar a variety of mekli is made of jute and cotton mixed; this is commonly dyed of a blue colour with white and red stripes, and is used to sleep on. There is a superior description of this, which is used as wearing apparel.

The coarsest kind is ordinarily used for sails for country boats, and for packing large bulky articles, or as outer coverings Coarse loosely-woven cloth. for articles enclosed in cloth or fine gunny. coarse cloth is known by the name of gin-chat, i.e., chat, or pat-made cloth At Dacca it is called káchá chat or immature gunny, adapted for sails, gún. and is there used principally for making bags for packing betel-nuts.

237. The ordinary mode of weaving gunnies for bags and other coarse

purposes is thus described by Babu Ramcomal Sen

Mode of weaving gunnies. in the paper noticed above:—

"Seven sticks, or chattee weaving-posts, called tand pard or warp, are fixed upon the ground, occupying the length equal to the measure of the piece to be woven, and a sufficient number of twine or thread is wound on them as warp, called taná. The warp is taken up and removed to the weaving machine.

Two pieces of wood are placed at two ends, which are tied to the *ohari*, and *okher*, or roller; they are made fast to the *khoti*. The *belut*, or treadle, is put into the warp; next to that is the *sarsul*; a thin piece of wood is laid upon the warp, called *chupari* or regulator. There is no sley used in this, nor is a shuttle necessary; in the room of the latter a stick covered with thread, called *singá*, is thrown into the warp, as woof, which is beaten in by a piece of plank called *beyno*, and as the cloth is woven it is wound up to the roller. Next to this is a piece of wood called *khetone*, which is used for regulating and smoothing the woof; a stick is fastened to the warp to keep the cloth straight."

Except where superseded by foreign implements or machinery, it is believed that the manufacture of jute cloth by the people is still carried on more or less after the method above described. The finer varieties of meklis are,

however, woven very nearly in the same way as ordinary cotton cloth.

238. The varieties of thick gunnycloth noticed above are what are current in the Calcutta market; but in the Mofus-sil there are other names current, and the sizes of which they are made also vary, and some of these are noticed in the following extracts from the district reports:—

Kishorgunge.—" Four kinds of bags—maal, chala, mona, and khuti, are manufactured. Maal is two and half cubits in height. It is made of a piece of gunnycloth five by two cubits. A chala is one and half cubits in height, and made of a piece of gunnycloth three by one-half cubits. Mona is a bag of smaller size, and is made of two cubits of gunnycloth by three-fourths of a cubit. A khuti is half a cubit in height. It is made of one cubit of gunnycloth by six inches. Two seers of jute is used to a maal, one seer to a chala, six chittacks to a mona, and three chittacks to a khuti. A maal is sold at five or six annas, a chala three annas, a mona at four pice, and a khuti at two pice."

Hooghly.—"Ropes, gunnycloth, and gunnybags, are the only descriptions of articles made of jute in this district. The extent of the manufacture of gunnycloth has been much reduced since 1870, when the demand for the article in the American market stopped. While there was such a demand, the uniform breadth of the gunnycloth throughout the district was 45 inches; but the breadth has been now generally reduced to 26 or 27 inches, to adapt the cloth to the manufacture of gunnybags. Gunnybags are manufactured only to a small extent in this district; and the manufacture of the article in large quantities by European agency at Barranugger, Mahesh and Gurepa, has greatly put down native enterprise in this respect."

Darjeeling.—" Dhokrah, measuring about two and half or three yards long and half a yard wide when first turned out, three of these strips are sewn together and make, what is termed, a dhokrah or floor cloth, or is spread on a bed; the poorer classes sometimes make garments of it. Tunghee, or a fine description of gunnybag, measuring about five feet six inches by two feet three inches in the piece; this is doubled, and sewn along both sides, thus making a bag, about two feet nine inches by two feet three inches, weighing from three to three and half seers. Tunghee is used chiefly as pads for pack-bullocks and tattoos. Borah, or the ordinary gunnybag, measuring five feet by two feet in the piece, and when sewed up give a bag two and half feet by two feet, weighing from one and half to one and three-quarter seers. The stuff is sewn into bags by the purchaser."

Dinagepore.—"Gunny sheets.—The gunny is not usually made into bags here, except for local use; it is made into sheets, the size being five feet four inches by two feet five inches, which forms into a bag when the ends are sewn up, half the above length and the same width: these bags weigh about

one and a half seers."

Rungpore.—" The manufacture is exclusively carried on by women, especially Hindus of Rajbungsi caste, who twist the thread and weave the bags at their leisure hours. These bags are woven by a simple process called punja benow. The bags are generally eight feet long and three feet broad. The tats (long pieces) used to prepare purdahs (screens) are made thirty feet long and one and a quarter feet broad."

Midnapore.—"The articles manufactured from jute are principally—(1) gunnybags; (2) string, cord, and rope; (3) kampa, a net-like bag for carrying wood or hay on bullocks; (4) chat, a strip of stuff for tying bales of cotton or cloth; (5) dola, a swing on which infants are rocked to sleep; (6) shika, a kind of hanging shelf for little earthen pots, &c.; (7) dulina, a floor cloth; (8) beera, a small circular stand for wooden plates, used particularly in poojahs; (9) painters' brush and brush for white-washing; (10) ghunsi, a waist-band worn next to the skin; (11) gochh-dari, a hair band for women; (12) mukbar, a net bag used as a muzzle for cattle; (13) parchula, false hair worn by players; (14) rakhi-bandhan, a slender arm-band worn at the Rakhi-poornima festival; and, (15) dhup, small incense sticks burnt at poojahs."

239. The use of jute for the manufacture of paper will be noticed lower down in connection with materials for the manufacture of jute paper.

Manufacture of jute paper.

ture of paper (paras. 251, 252, and 253.) The process followed does not differ materially from that adopted for the same purpose

with old rags, &c.

240. In the following tabular statement are shown the various articles into which jute is now manufactured, either for local use or for exportation, and the quantities of the fibre consumed in the manufactures. The figures are necessarily more or less approximate, it being impossible to obtain correct returns on the subject. Some of them are on their very face grossly incorrect.

Statement showing the qualities and quantities of jute manufactured, and description of manufactures in the Districts of Bengal, where manufactures exist.

Districts.	Fibres used in manufactures.	How much and what fibres used in each district.	Description of manufactures.	How disposed of.
Burdwan	Both good and inferior jute	350 maunds of good, and 5,690 maunds of inferior jute.	Gunny cloth and bags, twine and ropes.	Sold for local use and ex- ported to Calcutta.
Beerbhoom	Desi, Doolagunge and Narain- gunge jute.		Gunny bags only	Exported.
Midnapore	Koshta, Naskarkani, Kangra	Cannot be estimated	Gunny, ropes, strong cord	Gunny bags chiefly ex-
Hooghly	jute, &c., &c. Desi jute	120,000 maunds annually	Ropes, gunny cloth, and	Exported.
24-Pergunnahs* Jessore	Jute Ditto	640 maunds 780 maunds	Gunny and twine Gunny and twine Gunny for bags and sails, twine and ropes,	Exported. Sold at hats, and exported to Buckergunge.
Rungpore	Ditto	50,187 maunds	Paper, gunny bags, and tats.	Exported and locally used.
Maldah	Ditto	25,000 maunds	Gunny cloth, paper, and thread.	Sold at hats, and locally used.
Pubna	Baboon, Hemtal, Shoynee, Mesta and Desi.	1,350 maunds	Gunny cloth and chats	Exported and locally used.
Dinagepore	Jute	Impossible to give	Gunny and twine	Exported and locally used.
Cooch Behar	C. Capsularis	Not known	Coarso and fine gunny cloth and mekli cloth.	
Darjeeling	Red, white and Marah, Em- leah and Chera-mara.	Hardly possible to give	Gunny cloth, fishing nets, and rope.	Locally used, and surplus sold at hats.
Julpigoree	Jute	One-fourth into gunny bacs.	Gunny bags	One-fourth locally used and three-fourths exported.
Dacca	Mesta and Coshta for paper, inferior jute for other pur- poses.	90,000 maunds	Rope, bags, paper, sails, twine, and gunny sheets.	One-fourth locally used and three-fourths exported
Mymensing	Greater proportion of inferior jute.	12,000 maunds	Gunny bags and paper	Locally used.
Backergunge	Ditto ditto	600 maunds	Gunny bags and paper	Locally used and exported
Furreedpore	Desi, Bogi, Belun, Mesta	1,700 maunds	Gunny sail, twine, and cord.	
Chittagong	Jute	1,200 maunds	Rope and gunny	Locally used.
Tipperah	Ditto'	2,125 maunds	Gunny bags	Locally used and exported
Noskhally	Inferior jute, but Mesta for paper.	105 maunds	Gunny ropes and paper	Locally used.
Bhaugulpore	Jute		Strings	Locally used.
Cuttack	Ditto	500 maunds ,.,	Gunny cloth, rope, and paper,	Locally used.
Sylhet	Ditto	405 maunds	Gunny bags, and gunny cloth, sheets.	Locally used and exported
Moorsbedabad	Disto	38,000 maunds	Ropes, gunny bags, sack- cloth, packs for bullocks, and nets.	Used locally.

241. Little need be said here about the manufacture of jute in local

Manufacture in English mills.

English mills. There are six mills worked by

European machinery and agency, now in existence
in Bengal, and they belong to the following Companies:—

Baranagore Jute Mills Company. Serajgunge Jute Company. Calcutta Jute Mills Company.

Serampore Jute Mills Company.
Gouripore Jute Company.
Fort Gloster Jute Manufacturing Company.

With the exception of the factory at Serajgunge, the remaining five mills are situated in the neighbourhood of Calcutta. The number of looms in work in these factories range from 100 to 500, and the total number is about 1,500. Most of these mills are increasing the number of their looms, and new mills are in course of construction for the Budge-Budge Jute Mills Company, the Seebpore Jute Company, the Champdani Company, the Sealdah Company, and the Soora Company.

The mills already at work consume about 700,000 maunds of the fibre annually. When the new looms and mills will be at work in course of the next year, the consumption will rise from 40,000 to 50,000 tons per year. The manufactures turned out by the existing mills consist of wool-packs, twill-bags, and plain bags, of which 25 per cent. are reserved for local use, and 75 per cent.

are exported to Australia, Burmah, Colombo, Madras, and Bombay.

242. The quantity of manufactured jute exported during the past ten years is shown in Appendix L (pp. lxxvii and exxviii). It shows an increase of gunnies from 28,122,524 pieces in 1863-64, to 32,767,930 in 1872-73. The increase in the export of jute, twine, and rope during the same period has been from 647 cwt. to 5,051 cwt. Originally the Americans were the largest buyers of gunnyeloth, but their demand has fallen from 7,195,409 pieces in 1866-67, to 1,914,104 pieces in 1872-73. This falling off has, however, been compensated several fold by increased exports to Bombay, Burmah, and other places.

PAPER-MAKING.

243. I now proceed to submit, with reference to orders of the Government of India in the circular letter No. 129, dated the 26th January 1873, the following remarks on the various materials available for the manufacture of paper and paper-making in Bengal.

The materials originally used by the Hindus for writing were leaves 244.and bark. The former were probably the earliest Early notices. used, and from them letters in Sanskrit were named patra, literally "leaf," though the secondary meaning of letters, and latterally of newspapers, have now been intimately associated with it. When leaves and bark first came into use, is still a moot question; but, as very ably pointed out by the late Dr. Goldstücker, in his learned essay on Pánini, the time must date from many centuries before the Christian era. What the plants were from which the leaves were taken it is impossible now to determine. the last twelve hundred years or more three species of palm, viz. the Borassus flabelleformis, the Corypha taliera, and the Corypha elata, have yielded the bulk of the writing material for the Hindus. Before that the inner bark of the bhurj tree (Betula bhojpatra) was most in use, and allusions to it are to be met with in works two thousand years old. The early Aryans, in their settlements in the Punjab and along the foot of the Himalayas, must have found this material ready at hand, and employed it for various purposes of domestic economy, as well as for writing. At present its use is limited to the lining of hooka-snakes and to writing amulets on, which are enclosed in gold, silver or copper beads, and borne on the person as charms against evil influences. For this purpose the bark is held in high esteem on account of its lasting quality, for though thin and fragile to look at, it lasts for centuries without decay: in one instance a piece of bhurj bark about two thousand years old was found in the sanctuary of a Buddhist tope. Simultaneously with leaves and bark, the Hindus have used paper for writing for many hundred years. I am informed that Sanskrit MSS. written on paper have been frequently met with which date over five hundred years. How long before that paper first came into

use in India I have not been able to ascertain. Block-printing on paper got into currency in Thibet in the sixth or seventh century of the Christian era; and in Cashmir the use of paper and papier-maché ware became common at least twelve hundred years ago. It is well known that the Chinese first discovered the art of making paper with vegetable fibres, reduced by maceration and pounding into a pulp, about two thousand years ago, and the Thibetans must have learnt it from the Chinese. It is probable that the Hindus of the plains got the art from the Thibetans directly, or through the medium of the Cashmiris,—most likely from the latter, as Cashmir paper has always been held in the highest esteem in this country. The exact date when this took place I know not; but this must have taken place long before the last five hundred years, as the extant MSS, are said to be written on paper of a very good quality, and much time must have elapsed from the beginning of the art to the time when it attained a high stage of perfection, such as is evinced by the MSS, in question.

- 245. No information is available regarding the process which was formerly adopted by the Hindus in manufacturing paper. In the Ain-i-Akbari a notice occurs of variegated paper, the mode of preparing which was introduced by a celebrated scribe in the time of Akbar; but no detail is given of the manner of preparing it.
- 246. In 1832 the native manufacture was extensive, and, according to State of paper manufacture in 1832. Dr. Carey, who wrote an article on the subject for publication in the "Transactions of the Agri-Horticultural Society" (Vol. II, p. 809), was carried on in the districts of Burdwan, Balasore, Patna, Shahabad, Behar (now Gya,) Dinagepore, Dacca, Moorshedabad, and Calcutta. The quantity then made was so large that after supplying the wants of Bengal, it left an ample margin for exportation as an article of commerce to the Upper Provinces and the countries to the east. The paper made in the Burdwan district then carried off the palm for its superior quality.
- 247. The materials used in this manufacture in 1832 consisted, according to the authority quoted above, of "(1) flax or hemp; (2) jute; (3) old, worn-out gunny bags, purdahs, sails, &c.; (4) old paper and cuttings of the edges of paper collected from bookbinders and paper-makers; (5) damaged cotton; (6) rope cables, &c.; (7) nets; and (8) oakum."

248. The native method of manufacture is thus described in detail by Process of manufacture in Bengal. Babu Ramcomul Sen in the "Transactions of the Agri-Horticultural Society" (II, p. 89):—"The bags or flax is cut or torn to pieces and thrown into a large gumla or earthen vessel and kept there dipped in water for a day or two. It is often agitated, and now and then the water is changed, when the dirt with which these articles are generally impregnated goes off; the fibres are then taken out and the water squeezed out of them, after which they are exposed to the sun to dry.

"The thread, or fibre, is then put into another gumla, with a quantity of fresh homp and old paper mixed with a quantity of lime, and burnt sajee-metee dissolved in water, and left there for some days, till it becomes soft or partially rotten, when it is taken out of the vessel and sent to the pounding machine called dhenkee or pedal, which is made of solid timber 10 to 16 feet long, and 12 to 25 inches broad, and of a proportionate thickness. The mortar is constructed either of stone, or it is carved out of a piece of timber and lined with iron; the pestle is made of iron or wood covered with an iron lid called goola. The machine is drawn by from 2 to 6 men, and there is a man who feeds it with materials.

"When it is reduced to a sufficient fineness or liquidity, it is formed into

lumps or parcels sufficient for one day's work.

"The pulp is then thrown into another gumla, diluted with clear water, and allowed to remain there for some time. If the pulp is not clear enough, the water may be changed without agitating its contents, which settles at the bottom. A quantity of lime and water of sajee-matee is afterwards thrown into it, and agitated repeatedly by a paddle-formed wooden stick.

"The operator or maker sits on the brim of the reservoir, and lays a square frame called chowka made of wood, upon which the sieve made of fine split bamboo, woven with horse's hair, termed chatree, is placed. He first agitates the water soup. There are two sticks called chapa and hachka, by which the chatree is held close to the chowka. He dips the sieve into the gumla and draws it deep enough so that the machine is carried through the middle, and raised upon the surface. It is then gently shaken in order to equalize the substance that settles upon the sieve, upon which a thin layer is collected. When equalized and settled, he raises it from the gumla and lays it upon a piece of square board kept on his left side, and so continues the operation until from 200 to 250 sheets or layers are laid upon one another. The board, with the layers on, is then removed to the drying place, and another board placed upon it with a heavy stone or log of wood laid over the same, and allowed to remain in that state during the night to enable the water to exude and the paper to dry.

"The next morning the sheets are taken up one by one and laid upon matted walls or clean grass plats to dry. When dried, they are gathered and made into parcels of from 50 to 100 sheets each, and removed to the beating machine called pitna, or a piece of thick timber half buried in the ground, the upper part of which is concave, plain and smooth, like the washer's cloth-beating log. The sheets are laid upon the wood with one hand, and a mallet held by the other, with which the paper is beaten, softened, and smoothed.

"The next process is the sizing. A quantity of fine Arwal rice or wheat is first pounded, strained, boiled with water, and strained again through fine cloth, and kept in a pot; then large boards, well smoothed or planed, are placed upon the ground, the sheets of paper are laid flat one at a time and daubed with the paste. This part of the work is generally done by the females and by old men. It is performed with the palm of the hands with dry tipula (Luffe amara) or brushes made of soft fibres for that purpose.

"The sheets are dried in the shade, or in a mild, gentle sunshine, and are then collected and put into a press; if the paper be of fine quality. They are afterwards rubbed or glazed with gila (seeds of *Mimosa scandens*), shells or stone balls; the edges are then cut off, and the sheets folded and bundled into quires and lotted into guddies, and corges, in the usual manner: 24 sheets

make a quire, and 10 quires a guddy."

The class of mon employed in this manufacture were called, after their trade, Kagzees or "paper-makers."

249. I shall now reproduce from Martin's Eastern India (I, p. 333,) an account of the local manufacture in the Behar district, where it had formerly attained some extent:—

"A considerable quantity of paper is made at Behar and Arwal. It is whiter than that made in Ronggopur; but has all its other imperfections, and that of Behar especially is less durable, while the least dampness in the air occasions common ink to sink, so as to form almost illegible blots. It is only ink made of the cakes prepared as above-mentioned that can be used with such paper. At Behar the paper most commonly made is that called *dufturi*, which is $19 \times 17\frac{1}{2}$ inches a sheet, and is that used in common business; but other kinds of a larger size and rather superior quality are made, when commissioned. The materials are old bags of the Crotalarca juncea. These are cut into small. pieces, and having been soaked in water are beaten with the instrument The pulp is then put on a cloth strainer, washed with water, called dhenki. and dried on a rock. This substance is then put into a cistern with some ley of soda, and is trodden with the feet for some hours, after which it is in the same manner washed and dried, and these operations with the soda are in all performed six times. The bleached pulp is then put into a cistern with a large quantity of water, and is diligently stirred with a stick for about three-quarters of an hour, when it is wrought off into sheets as usual. The moist sheets are stuck on a smooth wall and dried. Having been rubbed with a paste made of flour and water, they are then smoothed by placing them on a plank and

rubbing them with a stone. The expense and profits of making seven reams are as follows:—

"Forty-two seers (864tb) of old bags, Rs. 2; 42 seers impure soda, Rs. 2; 42 seers lime for making the ley, Re. 1; labourers for beating with the *dhenki*, Re. 1-12; a man to stir about the materials, As. 8; pasting and smoothing the paper with a stone, As. 5; flour and firewood for making the paste, As. 2-6; drying the sheets, As. 4; cutting the paper, 6 pice.—Total Rs. 7.

"The ream consisted of 10 quires, each containing 24 sheets, and sells by wholesale at Rs. 8-12, so that the maker has Re. 1-12 profit. He does nothing but form the sheets, taking them as usual from the cistern on a frame, which retains the paper, and allows the water to escape. He makes about one ream a day; and, if he works 315 days in the year, he will earn about Rs. 80 a year; and, in fact, these people are in easy circumstances. In the 30 houses at Behar are 100 men, and in the 13 divisions exclusive of Arwal, that are in the district, there are probably 40 houses, or in all 140 men, who, at the rate above mentioned will make paper to the value of Rs. 32,000 a year."

250. The paper produced on the opposite side of the Sone river in Shahabad. Shahabad was known as Arwal paper, which, although made of the same materials, was whiter and more durable than that made at Behar, and was commonly used by Persian writers all over Bengal. Each maker usually manufactured five bales in the year, and each bale contained 20 reams.

"Two bales of the first quality at Rs. 4 a ream, Rs. 160; 2 bales of second quality at Rs. 3-8 a ream, Rs. 140; 1 bale of the third quality at Rs. 2-8 a ream, Rs. 50.—Total Rs. 350.

"The total paper therefore made by 20 beaters will be worth Rs. 7,000. The following

is the statement that I procured of the annual expense attending each beater:-

"To 2,620 seers (46 S. W.), or about 3,069tb of old bags or nets, which are still better, Rs. 57-8; to soda 2,340 seers, or 2,762tb, Rs. 45; to lime, the same quantity, Rs. 30; to flour for paste, Rs. 5; to cloth for strainers, baskets, &c., Rs. 2; to moulds, or frames, Re. 1-3; to labourers for beating, &c., Rs. 80; to working off the sheets, Rs. 25; to drying and smoothing, Rs. 7-15-6; to pasting, Rs. 5; to cutting and packing, Rs. 15.—Total Rs. 286-6-6.

"The neat profit, therefore, on each beater, besides paying every person for his labour, is Rs. 73-9-6. The materials were divided into five equal shares, each capable of making one bale. Under the beater of the implements is a small cistern, the bottom of which is stone. In this is at once put the fifth part of the old bags or nets, with a large quantity of water, and it is beaten for six days, after which it is washed on a strainer. It is then beaten two days with a lev of soda, washed and dried. This beating with the ley of soda is done in all nine times, after each of which the pulp is washed and dried. In dry cold weather each subsequent beating occupies eight or ten days; in the hot season five or six days are sufficient. The paste, when thoroughly bleached, All the sheets formed in one day are in the is formed into sheets as usual. evening placed under a plank, on which two or three men sit for about an hour to squeeze out the water. It is then stuck on a wall, and falls off next morning when dry. It is then pasted on one side and dried, and then it is pasted on the other side and dried, rubbed with a stone, and cut square. All the papermakers here also are Mahomedans. The Mohurutdars are persons who smooth paper by rubbing it with polished glass, which obliterates entirely the marks of the frame, as is done by hot pressing, and gives the surface a glossy smoothness. This operation costs from eight to ten annas a ream."

"A considerable quantity of paper is," writes Mr. Martin, (Eastern India, Vol. I, p. 544,) "made here. In Saher, opposite to Arwal, 60 beaters belonging to 40 houses were acknowledged; and 30 beaters in 20 houses are admitted to be in the Boraong division at no great distance south. The account given in respect to the quantity made entirely coincides with that procured at Arwal, that is to say, each beater makes annually 100 reams (gaddis) of paper; but the workmen here, instead of three qualities, divide it into four, the three lower of which are of the values specified at Arwal, while the highest is worth Rs. 5 a ream. They make four bales (ghani) in the year, each bale containing 25 reams."

"First bale of the first quality at Rs. 5 per ream, Rs. 125; second quality at Rs. 4 per ream, Rs. 100; third quality at Rs. 3½ per ream, Rs. 87-8; fourth quality at Rs. 2 per ream, Rs. 62-8.—Total Rs. 375.

"Expense attending the above:—2,500 seers (44 S.W.) or about 2,823 th of old bags Rs. 62; soda (sagi) 1,600 seers, or 2,108 th, Rs. 40; lime 1,400 seers or 1,582 th, Rs. 24; flour for paste 700 seers or 791 th, Rs. 11; eloth for strainers, Rs. 5; earthen tubs and pots. Re. 1; bamboo baskets, Rs. 4; mats, Rs. 2; ropes and twine for packages, Rs. 2-8; fuel for boiling the paste, Rs. 16; 4 men to beat and wash, Rs. 100; one man occasionally to stir the material, Rs. 3; preparing and applying the paste, Rs. 12; smoothing, cutting, and packing, Rs. 10; working off the sheets done by the master, Rs. 25; cutting the bags, Re. 1; mould or frames, Rs. 4; putting the sheets on the wall to dry, Rs. 6; watching the paper while drying, Rs. 4; horsetail hair for separating the sheets from the wall, 12 annas. Profit Rs. 41-12.—Total Rs. 375.

"The expenses here are no doubt exaggerated, as will be evident from comparing them with the account given at Arwal; and the owner of the beater, besides the Rs. 41-4, has always the Rs. 25 for forming the sheets, while most of the allowances for preparing and applying the paste, for smoothing, cutting, packing and drying, are gained either by him or by the females and children of his family. According to this estimate, the 90 beaters will annually prepare 9,000 reams, worth Rs. 33,670, but more is allowed to be exported by the traders of this district, persons not at all apt to exaggerate their dealings, and the number of beaters is probably at least 100."

251. In Dinagepore paper was made about the year 1838 entirely by

Mahomedans, who seemed to have introduced the art into the district. Before their arrival the art into the district there were between 80 to 100 families employed in making paper sufficient to meet the then existing demand. The quality was very inferior, even to that made near Calcutta. It was brown, rough, uneven, spotted, fibrous, full of holes, and brittle; ink sank into it, and insects devoured it with avidity. The people who made it required little or no capital, usually carrying it themselves to the markets just as made, and the petty traders who bought it afterwards sold it by retail. The sheets were usually 24 inches long by 16 wide, and were doubled twice; 24 sheets made a quire, and the manufacturers usually sold 10 or 12 quires for a rupee.

The material is the pat in its rough state. A sufficient number of bundles is thrown into a large jar that is sunk in the ground, and they are covered with a mixture of lime and water, in which they are allowed to soak for from two to nine days, according to the heat of the weather; the hotter that is, the less time being required. The bundles are then dried, and the lime that adheres is separated from them by beating and shaking. They are then moistened with water and beaten with a dhenki, which has a cap of iron, and falls upon a stone slab. While it is beating, the pat is occasionally moistened until it is reduced to a kind of pulp. This part of the operation, which is the one attended with labour, is performed entirely by the women. The pulp after coming from the mortar is thoroughly washed, and a portion of it is thrown into a wide-mouthed vat made of potter's ware, that is sunk to the level of the yard. A large proportion of water is added, and they are stirred until the pulp is properly diffused; but little pains is bestowed on this, which seems to be the chief cause of several of the imperfections that are in the manufacture. In fact the pulp, with a very little stirring, is allowed to soak four or five hours, and is then wrought into paper. The workman's mould is made of bamboos split fine and tied together parallel to each other, and this is extended by a movable frame, made also of bamboo, which serves as a ledge to confine the pulp. The workman holding his mould with one hand stirs up the pulp with the other; then immerses his mould, and takes up a quantity When he has allowed the water to escape he lays sufficient to make a sheet. aside the frame, and turning over the mould, places his new sheets of paper above those that he had previously made, and he repeats the operation until the pulp in the vats is exhausted. In this heap the paper is allowed to dry. It is then taken sheet by sheet and immersed in a decoction or starch made of rice,

and having been dried is placed on a smooth plank, and rubbed with a round stone."

According to the Collector of Dacca, paper is now made in that 252.district according to the following method:—"The Ditto in Dacca. mesta fibre is steeped in lime-water* for three hours, and then kept in heaps in that wet state for a day. It is next dried, cleansed, and pounded in a dhenki, and then placed in gunny * 20 seers of mesta. 3 , of lime. 20 ,, of water. bags, washed in clean water, and put into an earthen pot containing water, and churned by two men until The mixture is then taken up in small quantities in a the fibres are destroyed. sapurm, or bamboo sieve, and shaken; the pulp remaining in the sieve forms a sheet of paper. The sheets of paper thus prepared are kept in heaps for a day, and then dried, sheet by sheet, in the sunshine, after which they are cut and trimmed and rubbed with a paste made of unboiled rice and again dried. Finally they are made smooth with a stone and folded up."

When colour is required arsenic is mixed with the paste employed in sizing the paper.

Five quires of paper can be made with one seer of mesta.

One man can make a ream of paper in four days.

Ditto in Rungpore.

It is seen the material instead of the fibre of the Hibiscus cannabinus, as in the last named district.

"Twenty seers of jute are mixed with ten seers of lime, and kept in a pucka vat for one day under water. On the second day the jute is taken out, twisted to squeeze out the water, and kept in the shade for four days. On the sixth day it is exposed in the sun; and on the seventh it is again mixed with two seers of lime, and kept in the vat under water for four or five days, and then dried again, when it undergoes a process locally known as doom, yn, viz., that it is cut into pieces six inches long and well cleaned.

"When the jute becomes decomposed, it is pounded continually for three days in a dhenki; six persons work at the dhenki, and two are employed to turn the stuff in the mortar. The process of working the dhenki is known by the name of par, and that of turning over the stuff in the mortar by the name of alli. When the stuff is well pounded, it is taken near a sheet of water, laid on a bamboo mat with a layer of grass under it, and then trodden upon for one day by two persons, whilst a third pours water on it. The mat is laid over grass to prevent the stuff from being soiled with mud.

"This process is known by the name of kuchba, and when it is over, the stuff is deposited in a second pucka vat, full of water to the brim, and beaten with a bamboo stick for one day. A little oil, say half a tolah, is poured on the water to enable the pounded substance to settle down to the bottom of the vat. The stuff is then gently stirred with a stick till a very thin layer rises to the surface. This layer is taken out by means of an instrument called chanch, and deposited on the ground. This instrument (chanch) is made of bamboo sticks neatly and slenderly prepared, and tied together in the form of a chick. The size of this instrument is as large as the paper itself. When the layers so taken out have accumulated, so as to form ten or twelve quires of paper, they are put under pressure for the purpose of expelling the water. They are then suspended, sheet by sheet, on a tatti to be dried. When the sheets become sufficiently dry, they are taken down from the tatti, brushed with lai on both sides, and exposed in the sun. The lai is a paste made of boiled rice, and the brush consists of thasa, a sort of fruit. After the brushing, the paper is rubbed with a heavy stone over a plank in order to give it a gloss. The borders are then cut by an instrument called bonti, a large knife shaped like an erasor."

The quantity of materials above stated would produce four reams of paper of a very coarse kind, each ream weighing five seers. The selling price is not, however, stated.

The cost of preparing four reams of paper is as follows:-

				${ m Rs.}$	A.	P.
Twenty seers of jute	•••	•••	•••	1	4	()
Twelve seers of lime	•••	•••	•••	U	4	0
Rice for lai	•••	•••	•••	0	8	0
Eight thusas (brushes)	•••	• • •		0	0	6
Udda (a stick)	•••		•••	0	()	3
Oil	•••	•••	•••	0	0	3
Two labourers for lining	•••	•••		0	4	0
One labourer for drying	- •••	•••	•••	0	2	0
Two labourers for preparing	ig doom		•••	0	4	0
Twenty-four labourers for g	rinding.	•••	•••	2	4	0
Three labourers for washin	g in the river	•••	•••	0	6	0
Six do. for taking	up the layer	•••	• • •	, 1	2	0
Three do. for brushing	ng	•••	• • •	0	6	0
Two do. for rubbing		•••	•••	0	4	0
Two do. for cutting	the borders	•••	•••	0	4	()
		Total	•••	7	5	0

254. According to the local report from Seebsaugor, it appears that it is known in that district that paper can be produced from the fibre or bark of several varieties of the Indian fig-tree, and that a coarse quality of paper was manufactured from such materials in the days of the Ahom kings of Assam. At the present day the manufacture is extinct in the districts of the Assam division, except Lukhimpore where paper is said to be made by the Kamptees from the leaves of the jori bor tree, probably the Indian fig-tree, spoken of in Seebsaugor. But the process of manufacture is not described. The local produce, however, is stated to be gradually retiring from the market before the Serampore paper, which is selling more cheaply.

255. In Darjeeling an experimental manufacture of Nepal paper from the paper plant was attempted in 1841, and carried out with very successful results, the paper produced being pronounced by Dr. Campbell, then Superintendent of Darjeeling, to be of excellent quality. (Journal of the Agricultural and Horticultural Society, Vol. I, pp. 210-221, 273.) The manufacture was then, however, considered to be rather costly; but the cost was stated to be susceptible of reduction. When and for what reason the manufacture of Nepal paper was abandoned, I am unable to say. At any rate the paper that is now still manufactured in the district is stated to be made, as in some other districts, from the jute fibre

only.

256. At the present day the industry is followed more or less in 28 out
of 53 districts in Bengal, though the superior quality
and cheap price of European paper and paper
locally made after the European method, are gradually displacing the native
production in the markets of the country. In Burdwan, where the finest

production in the markets of the country. In Burdwan, where the finest quality of country paper was known to be made in 1832, the manufacture has now been entirely abandoned owing probably to its vicinity to Calcutta, whence the local wants of the district are very cheaply supplied. On the other hand, in the Hooghly district, which is nearer still to Calcutta, the art is, notwithstanding the manufacture in the jail and the more powerful competition of the Bally mills, still practised at some places with so much success that to a sample of the local manufacture a prize was awarded at the Burdwan exhibition. The statement which follows exhibits the present condition of this industry as carried on after the native method in the districts of these provinces:—

Statement showing the districts in which paper is manufactured out of jute and other materials, quantity of materials used, the cost of preparation, quantity prepared, and selling price.

Districts.			Materials used,	Quantify used during a year.	Cost of preparation.	Produce of paper during a year.	Selling price.	Remares.
Bancoorah	:	Waste	Waste paper, old gunny, and rags	:	Re. 1 per ream	12,669 quires	10 quires per rupee	In jail.
Hooghly, Bally	:	Old pa	Old paper, gunnies, jute or hemp ropes, rags, and junk	k 1,800 maunds	Rs. 49 per 18 reams	86,400 ,,	18 reams per Rs. 76-8	On European method.
Howrah	:	Hemp,	Hemp, old gunny cloth, paper and linen		" 2-8 per ream		1 ream per Rs. 4-8.	-
Jessore	:	Old paper				7,253 quires	3 pice per quire.	
Moorshedabad	:	Rotten	Rotten gunnies, cotton, old påper and sunn		6 to 9 pies per quire		Annas 1-6	
Dinagepore	:	Bowin	Bowmuchki pát					Manufacture ceased.
Kaldah	:	Jute,	Jute, old paper, and rags	:	Rs. 2-4 per 32 quires	:	2 annas a quire	
Rajshahye	:	Old pa	Old paper, jute, and rags	1,060 maunds jute	12 annas per ream	16,000 reams		here. Diminishing gradually.
Pubna	:	Jute, 1	Jute, lime, and a little oil		•	,		Manufacture ceased.
Rungpore	:	Jute (1	Jute (now), sunn (was used before)		Rs. 7-5 per 4 reams	:	••••	
Bograh	:	Jute only		100 maunds	2 to 22 pice per quire	32,000 quires	3 to 4 pice per quire.	
Darjeeling	:	Jute a	Jute called danay and dasay			•		Very durable; bamboo was formerly
Julpigoree	:	Red ju	Red jute only	:	Rs. 3-8 per 2 reams		2 reams at Ra. 5.	used bere.
Dacca	:	Mestá	Mesta pat, hemp, with lime	:				1 maund yields 200 quires.
Mymensing	:	Mesta,	Mesta, old paper, with lime		•	•		
Furreedpore	:	Jute a	Juke and old paper	12 maunds	Rs. 2-8 per ream	1,260 quires	Rs. 6-4 per ream	Extensively done formerly.
Backergunge	:	Jute a	Jute and hemp					Small scale.
Chittagong	:	Gunny	Gunny, old papers, pasts and sunn	300 to 400 maunds	Rs. 3-1-3 per ream	25,000 quires		
Noakhally	:	Mestá	Mestá or Meechut pát	8 maunds and 17 seers	2-1-6	1,807 ,,	Rs. 6-4 per ream	Jail,
Purneath	:	Jute 2.	Jute and sunn	130 madnds		10,060 ,,		
Bhangulpore	:	Waste	Waste paper, old gunnies, jute, and rags	:			:::::::::::::::::::::::::::::::::::::::	
Gys	:	Jute (i	Jute (in former times), hemp canvas (now)	S8 maunds		4,000 quires	. ,,,,,,,,,,,	,
Tirhoot	:	Old gu	Old gunzies	904		20,000 ,,		
Shahabad	: , :	Old ray	Old rags and jute	•	25 reams at Rs. 113	1,293 reams	-	
Cattack	:	Нетр				:		One seer gives six quires, i.e., 6
Pooree	:	Lately	Lately stopped in jail, where only it was done		•			alitas gives o annas.
Balagore	:	Waste	Waste paper, rags, and hemp	30 maunds	Rs. 1-4 per quire	4,000 quires	Rs. 1-7 per quire	In jail, besides done by Kagjees.
		-						

Full information as regards the manufacture of paper in the jails has not come to my hands; I believe it is carried on more or less in the native method,

and with the same materials as are used by the natives.

The only large establishment in these provinces where paper is made after the European method and with European machinery is at Bally, close to the town of Howrah. Formerly there was a large mill at Scrampore, which turned out printing and cartridge paper in enormous quantities, but it has now for some years been abolished.

Fibres named by Government.

Fibres named by Government.

I beg to submit the following brief notes, in the order in which they are entered in the circular. They have been compiled principally from local reports received in reply to a circular issued by me on the subject (Appendix O, pp. lxxxvii to xc), as also from Drury's Useful Plants of India, Royle's Fibrous Plants, Roxburgh's Flora Indica, Voigt's Hortus Suburbanus Culcuttensis, and other leading works on the vegetable productions of India, with a view to bring all the available information on the subject to a focus.

258. The cultivation of this plant and its uses have been described in a preceding paragraph (14). From the local reports I find that it may be largely grown in Jessore, Rungpore, and Bogra; it is extensively grown already in Hooghly, the 24-Pergunnahs, Nuddea, Moorshedabad, and Cuttack; and that it is already grown, and its culture may be extended in the following districts:—Bancoorah, Beerbhoom, Howrah, Dinagepore, Malda, Raishahye, Mymensing, Chittagong, Noakhally, Tipperah, Patna, Gya, Shahabad, Tirhoot, Sarun, Chumparun, Bhaugulpore, Purneah, Balasore, Hazareebaugh, Lohardugga, Singbhoom, Maunbhoom, and Nowgong.

259. The stem of this plant yields a strong fibre fit for the manufacture of ropes. "The fibre in the Bancoorah district, where the plant grows wild, is sometimes used as a substitute

for ropes in making fences for gardens, but not for any other purpose."

260. This plant has been described in paragraphs 12 and 13, and an account of the paper made at Dacca with its fibre occurs in paragraph 252 (ante, p. 87). In the statement annexed to paragraph 256, it will be seen that its fibre is used for papermaking also in Mymensing and Noakhali. In fact, as a variety of jute, it is as fit for paper-making as the true jute is.

261. When cut in flower, the bark of this plant yields a fibre which is rather fine and silky. The towy part of the fibre is considered suitable for the manufacture of paper,

and for this reason the plant might be cultivated with advantage.

262. Indigenous on the western coast of Africa. The tree has long been naturalised in India; but the only two districts in Bengal in which these trees are, according to local reports, to be found, are Hazarcebaugh, where they are scarce, and Nowgong, where they are growing wild. Under instructions issued by the Secretary of State for India, at the instance of Dr. Hooker, the Government of India have directed the experimental cultivation of the tree in some suitable locality in Bengal; and arrangements are in progress for carrying out the wishes of the Home Government. Some trees in the Government Botanical Garden at Sibpur have attained a large size.

263. This plant is known all over Bengal under the name of intmorá.

It is particularly abundant along the foot of the Himalaya. It attains the size of a small tree, and bears flowers in the rainy and cold seasons. Its fruit, which comes to maturity in February and March, is used medicinally for infantile diarrhea and in the lying-in-chamber.

264. A full account of the first-named plant is given in paragraphs

Crotalarea juncea.

Ditto tennuifolis.

23 to 28 of this report. The second affords the

Jubbulpore hemp. It is not grown in Bengal.

Dr. Voigt takes it to be the same with the C. juncea.

265. The silky floss which surrounds the seeds of this plant is said to have been woven into shawls and handkerchiefs. Paper has been made of this floss by itself, as also with it mixed with two-fifths of the pulp of the hemp. The fibre of its bark is considered to be better adapted for cloth than cordage; and if cautiously removed from the stalks, might be produced of length enough for any purpose. From its elasticity and softness it may readily amalgamate with silk. A description of the plant occurs in paragraph 17 (ante, p. 4).

266. An under-shrub or twining plant, wild in Bengal, and the Himalaya, as also in Peninsular India. Its stem yields a fibre which has been recommended as a fair substitute for flax. It is said to be very fine, and strong. An Alpine plant of the mezerum tribe, common in the Himalaya, from Darjeeling to Nepaul.

267. An under-shrub or twining plant like the last. It bears a small greenish yellow flower in April, and its fruit does not attain maturity until the following February. According to Voigt "the milk exuding from wounds in this shrub thickens into an elastic substance acting like caoutchoue on black-lead mark. The bark of the young luxuriant shoots yields a large portion of beautiful fine silky fibres, with which the mountaineers of Rajmehal make their bow-strings, on account of their great strength and durability." It grows wild in the sub-Alpine regions of Bengal.

268. An excellent paper is made from the inner bark of this plant, prepared like hemp. The plant grows on the most elevated and exposed parts of the mountains, even where they are covered with snow. It seems to thrive luxuriantly wherever it is in the vicinity of the oak. A smooth soft and tough paper is made of its fibre on the hills in large sheets, measuring 12×4 feet. The fibre is also wrought into very strong cordage, which when worn out can be converted into an excellent quality of paper.

269. The history of this plant and its uses will be found noticed in paragraphs 29 to 37 (ante, pp. 8-10). It has not been used as a material for paper-making in Bengal.

270. Dr. Roxburgh describes this as a "very ferocious-looking plant, the least touch of which produces a most acute, though quickly-subsiding, pain; bark abounding in fine white, glossy, silk-like strong fibres." It is a native of Concan, Coromandel, Prome Zoongdung, Nepaul, &c. Cultivated to a small extent in Assam; not known on the plains.

Bohmeria nivea, Urtica tenacissima.

271. A full account of the rhea plant has been given in paragraphs 18 to 21 of this Report (ante, pp. 4-5).

272. This plant (mentioned in paragraph 22 (ante, pp. 6) is said to spring up in rice-fields and other wet places during the rainy season. The soil intended for this plant should be low and wet; it may be sown without much preparation, as the plant is hardy and rapid in growth, growing from 6 to 10 feet. The cultivation is considered advantageous, as the crop improves the soil.

Full directions for its culture are given in Royle, who states that a gentleman well acquainted with this fibre in India was at a loss to know "why the dhonche remained so much neglected in this country, as it is really a very excellent fibre for common cord and twine purposes, and certainly very much superior in strength and durability to jute; it is also a much hardier plant than jute."

Antearis saccidora.

273. This plant is closely allied to the hemp, but is not known in Bengal.

274. The economic uses of the fibre of the cocoanut are so well known that nothing need be said here. The tree does not thrive well beyond the influence of the sea breeze,

and the bulk of the coir used in the country has to be imported from the Malabar Coast, the Maldives Island and Ceylon. The fibre of the leaf-stalk, which is said to be fit for paper-making, has not been employed to any purpose here, nor can it be had in sufficient quantities for exportation at a cheap rate. Like other fibres, the fibre of the cocoanut may be made use of in the manufacture of paper.

The toddy palm is common all over India, and strong and durable fibres are drawn from the petioles of the frond of Borasus flabelleformis. this tree; but they have not been employed to any extent for economic purposes in Bengal. The trees are generally scattered so widely apart, that it would be difficult to collect their fibres in sufficient quan-

tities for exportation at a cheap rate.

276. Fibres of different qualities may be obtained from the leaf-stalks, stems, spathes and seed-coverings of this plant, but Areca catechuvery little of them is prepared for use. In Bogra the betel-nut is said to be steeped in water with its husks on, and when the latter is decomposed the fibre is taken out; but it is not stated for what purpose the fibre is used. The tree grows very vigorously in most of the littoral and eastern districts of the Lower Provinces.

This plant grows wild in marshy places; in the Sunderbuns it is particularly abundant, growing on the two sides of Pandanus odoratissimus. the creeks, which are often made impassable by the thorns, interlacing branches and aerial roots of this plant. It yields a very fragrant white flower in spathes 16 to 20 inches long, with which an aromatic water is distilled for use as a cordial. The flowers are also used in the preparation of a kind of scented catechu much esteemed by Hindu ladies. The leaves, spathes and aerial roots are rich in good, strong fibre, and they are said to be utilized in the districts of Hooghly and Bogra. This is exceptional; ordinarily no attempt is made to manufacture any fibre from the Pandanus

in Bengal.

In Mauritius however, the tough fibres of its leaves are used for matting, cordage and thatch, and it is said they are good for paper-making also. there "grows to the height of thirty feet; but generally the cropping of the leaves, which commences in the third year, keeps the plant down to the height It is remarkable for the aerial leafless roots which of from six to ten feet. it sends down as supports for its stem, and which are of so fibrous a nature as to be employed for making paint brushes for common purposes. The leaves are cut every second year after the plant is three years old, and each plant is said to yield material enough for two bags. The preparation must begin immediately the leaves are cut down from the trees, and consists first in splitting the leaves into fillets, which are from three-fourths to one inch broad at the base and tapering to a point to about from three to four feet in length." ---Royle's Fibrous Plants of India, pp. 36-37.

278. This plant, described in paragraph 16 (ante, p. 4) is well known for the excellent fibre it yields. "It is easily propagated Sanseveira zeylanica. by cuttings, and thrives in almost any soil, throwing

up abundance of fresh roots, shoots, and thus extending itself in every direction." "The easy propagation of the plant, its general distribution over the country, the simple process of preparing the fibre, and the variety of uses to which it can be applied, whether for rope, paper, cloth, or other purposes,

make it extremely valuable."

The native method of preparing the fibre is to steep the leaves, which are 12 to 16 inches long, in water for several days, till the pulpy part has rotted. In this way the fibres are easily separated, though they are apt to be discoloured by the steeping. Sometimes the leaves are first beaten to separate the fibres more easily, and then placed on a board and scraped with a piece of rough stick or iron till the pulp is removed. For every 40th of fresh leaves Dr. Roxburgh obtained about 1th of the clean fibre, and he reckoned that two crops might be easily calculated upon when they are planted for the sake of their fibres.

279. This is a lilliaceous plant, like the last, and is deservedly estimated as a magnificent ornament for gardens. It grows freely in almost any climate, and abounds in fibre of a fine quality and strength. It is reported to be growing wild in Burdwan, Howrah, Jessore, and Rajshahye; it is cultivated in Bogra, Cooch Behar, Backergunge, Mymensing, Sylhet, Cuttack, Pooree, and Hazareebaugh; and it is to be found, though not abundantly, in Moorshedabad, Pubna, Bhaugulpore, and Lohardugga.

In the Rajshahye district, it is said that the fibre of this plant can be prepared at Rs. 4-8 or Rs. 5-0 per maund, selling at Rs. 6. But I do not find

that it is anywhere cultivated in Bengal for its fibre.

280. The fibre of the plantain tree is considered an excellent substitute for hemp. The outer leaves of thesheathing footstalks yield the thickest and strongest fibres. Dr. Hunter observes that the fibre is easily cleaned, but some simple machinery

is requisite. [Selections from the Records of the Madras Government No. XXIII, p. 158.] The fibre is fine, white, silky, and of considerable length,

lighter than hemp, flax, and aloe fibre, but very strong.

"Among cultivated plants," writes Professor Royle, "there is probably nothing so well calculated to yield a large supply of material fit for making paper of almost every quality as the plantain (Musa paradisaica), so extensively cultivated in all tropical countries on account of its fruits, and of which the fibre-yielding stems are applied to no useful purpose. * * * Each rootstock throws up from six to eight stems, each of which must be yearly cut down and will yield from three to four pounds of fibre fit for textile fabrics, for rope-making, or for the manufacture of paper. As the fruit already pays the expenses of the culture, thus the fibre could be afforded at a cheap rate. As from the nature of the plant, consisting almost only of water and fibre, the latter might easily be separated * * * some very useful and tough kinds of paper have been made in India from the fibres of the plantain, and some of finer quality from the same material both in France and in this country."—Fibrous Plants of India, p. 390.

The plantain tree is so generally to be found in Bengal, that it is scarcely necessary to specify the districts in which it is cultivated, being indigenous in most districts and congenial to the soil of nearly all districts. The tree thrives best on land covered with a new layer of mould dug out of tanks containing much decayed vegetation. The cost of cultivation and outturn are thus

described, as observed in a suburban district:—

"For instance," writes the Collector of Howrah, "it costs quite Rs. 70 to start a plantain garden of 250 plants to a beegah of land. To keep it up during the two years it is idle will bring the outlay to near upon Rs. 100. In the third year sum of Rs. 75 is recovered, of which about Rs. 60 are net. It is not till the fourth year that the cultivator turns the corner, supposing that he has not borrowed his outlay at heavy interest, which however he usually has done."

Professor Key of Madras very correctly states that in India the plaintain will flourish in the forest soil, and near brackish water, and that its culture might be extended with very little trouble and expense. A sucker being planted rapidly attains maturity, some varieties in eight months, others within the year, * * * each throwing out from its roots and around its stems from six and seven to eight and ten fresh suckers; these will each form a distinct plant, * * * all requiring to be cut down annually in order to make room for the fresh suckers which spring up. * * * By cutting away some of the suckers as they arise at different periods and allowing others to remain, a supply of fruit and also of stems for fibre may be obtained for a great part of the year."

Full details of the process of preparing the plantain fibre are given in Royle's Fibrous Plants of India (pp. 78-90), where he says: "Of the value of the plantain fibre for paper-making, there can, I concieve, be no doubt. Some paper, though unbleached but excellent, as far as substance and tenacity is concerned, was sent from India by Dr. Hunter in 1851. In the year 1846,

Mr. May showed the author some beautiful specimens of note and letter paper made from plantain fibre."

281. This is a Philippine plaintain, and not to be met with in Bengal.

At the Royal Botanical Garden at Sibpur it has been cultivated for some years; but it seems not to

take kindly to the place, as it has not yet flowered there.

Agave americana.

Agave americana.

Agave americana.

According to Royle and Drury, in the Madras presidency the fibre is much used and prepared at a very small expense. The process of preparation is as follows:—"The leaves are cut and thrown into water for three or more days, after which they are taken out, macerated, and scraped with a rather blunt instrument. It was found that the leaf fibres were loth to rot owing to a milky, viscid juice which they contained. This defect has, however, been considerably obviated by very hard crushing or pressure between heavy cylinders, which, by expelling the moisture, renders the fibres more pliable for weaving and other purposes." The cultivation of the plant can be extended to any extent desirable, and at a very small cost.

283. This plant, though not indigenous, has long been domesticated in India. It is to be found in almost every district of the lower provinces, where it is cultivated for its fruit. Except in the Rungpore district, where the leaves are steeped in water for four or five days, and when decomposed the fibres are separated and converted into twine much used by the local shoe-makers, the fibre of the pineapple is not prepared in Bengal; but if its fibre were more generally known to be valuable for manufacture, it would without doubt be more extensively raised.

Corchorus capsularis. C. olitorius. 284. Nothing need be said of these plants in addition to what has been already stated above (paras. 41 to 64.)

285. The leaves are twisted into ropes of great strength. The plant grows abundantly in almost every part of Upper India, and has been from a very remote period of antiquity used by the Hindus for making cords. It is a common weed in most parts of Bengal also. Its fibre can be exported at a small cost, and to any extent desirable.

286. This is a rank weed like the last. Its leaves are made into ropes, which are very strong and durable, even when exposed to the action of water. Like the Saccharum munja, this reed is also considered by Dr. Royle to be suitable for paper-making.

287. The early history of this plant is given in paragraphs 38 to 40 of this report (ante, pp. 10, 11, 12). In 1840 the Agri-Horti-

cultural Society of India published in their Transactions some interesting papers, containing reports of the result of experiments with Dutch and Russian seed in juxta-position with the country seed. These reports showed that where a proper selection of lands had been made and the cultivation had been properly conducted, both European and country seeds came forward with all the luxuriance that characterises the crops in Europe, and in length and fineness the fibre raised by the Flax Company was pronounced by

the Belgian workmen as equal to the produce of Europe.

This plant being raised for its seed only, the stalks are allowed to be trampled down or eaten by cattle. The fibre will of course be of inferior quality, but still applicable to many purposes. "To show the usefulness of this refuse of the fields, a few bundles of stalk, steeped in water in a common earthen-ware pan and exposed to the full action of a powerful sun, will yield in a few days a fibre easily separated by the hand; when dried in the open air, and made into the common twine is found to be decidedly superior, in smoothness and regularity, to what is wrought out of the Hibiscus cannabinus."—Journal of Agri-Horticultural Society of India, Vol. VIII, p. 186.

It is reported to be scarcely grown in Hooghly, Pubna, and Lohardugga, and to be more extensively cultivated in Burdwan, Beerbhoom, Moorshedabad, Dinagepore, Rajshahye, Furreedpore, Mymensing, Noacolly, Tipperah, Bhaugulpore, Cuttack, Balasore, in the districts of the Presidency and Patna divisions, and also in the districts of the Chota Nagpore division, except Lohardugga.

288. The rice straw is a valuable fodder, bamboos are used for a variety of domestic purposes, and the refuse of the sugarcane is used as fuel for boiling molasses, and they are not likely to be had sufficiently cheap for exporta-

tion as a material for paper-making. In the Maldah district, according to Pemberton's Statistical and Geographical Report, paper used formerly to be made out of bamboos by turning certain parts of the stalk into pulp, steeping the pulp in a solution of alum and water, and after agitating the mass, taking up on a fine sieve a quantity of the floating particles sufficient to form a sheet. The paper thus made was strong and durable, but the bamboo is no longer used for paper manufacture in Maldah.

289. I annex here a tabular statement showing the extent to which the different plants named in the Government circular and described above are available in the different districts under the Lieutenant-Governorship of Bengal:—



Statement showing the Districts in which the Fibrous Plants enumerated in the letter of the Agricul

A, Wild; B, Cultivated;

Abelmoschus esculentus. ten acissima Girardinia heterophylla, DISTRICTS. Нівізств саппавіпия, tenuifolia Calotropis gigantea. Hibiscus sabdariffa. cannabina. Adansonia digitata Crotalaria juncea. Indicam sora corylifolia. Cannabis sativa. Demia extensa. arsd-enia Boehmeria Crotalaria Abutilon Daphne (Burdwan ... Bancoorah ... Beerbhoom ... Miduapore ... Hooghly ... Howesh B B D B B В :.. ::: ••• Ä B ••• A A Ä Ä ... Ë Ä Ċ ÄB ••• ••• ••• Howrah C C D В 24-Pergunnahs $\ddot{\mathbf{\Lambda}}$ Ö Ā Nuddea Jessore Ġ Έ Ð B \mathbf{g} DB A A A A Moorshedahad CHBBDD С В Moorshedasad Dinagepore ... Maldah ... Rajshahye ... Rungpore ... Bograh ... Pubua B Ä ••• B B ... Ä Ä ... ••• :; В B F B B ••• ••• ٠., ... • • • ... Darjeeling Julpigoree ... Cooch Behar ••• ••• B ... ••• ... ••• ... ï Ä Ϋ́ Ä ï ö ... Dacca
Furreedpore
Backergunge
Mymensing...
Sylhet
Cachar ... ••• ••• ë В Ä G B B B Ë ••• ... ••• ... ••• • • • Chittagong Noakhally Tipperah ... Chittagong Hill Tracts Hill Tipperah ... B B Α Λ B Ä ... ••• ... ••• D B ••• ••• ••• ٠., ... Patna D ... BBBBBBB BBBBBBB ••• ••• ... Gya ... Shahabad B ••• ••• ••• ... ••• ·•• ••• ••• Tirhoot Ä Sarun ... Chumparun... ••• Ë ••• ... ••• Monghyr Bhaugulpore ... Purneah Sonthal Pergunnahs ••• ... Ϊ̈ B Ö B Ä A ··· ï ••• ••• ••• ••• .., A A B Cuttack Ë B Ä B B ••• ••• ••• Pooree Balasore ... ••• ••• ··· ••• ::: ••• ••• -.. · • • B Hazareebaugh A A A A В ö Ë Lohardugga Singbhoom ... Maunbhoom ••• BBB ••• ••• •--Ä A Ë R **A** A Coalpara ••• ••• ... B Kamroop Durrung ... B • • • ٠.. ٠.. ... Ä Ä Ä Ä Ë B B Ë ••• ••• ••• Nowgong ... Scobsaugor Ë Ë Naga Hills Khasi and Jynteah Hills Garo Hills ••• ••• ... :... ••• ••• **...** ···

tural Department of the Government of India, No. 11/20, dated 26th June 1873, grow or are cultivated.

C. Largely cultivated; D. Scarce.

Antiaris saecidora.	Cocos nucifera.	Borassus flabelliformis.	Areea catechu.	Pandanus odoratissimus.	Sanseviera zeylanica,	Yucca gloriosa.	Musa paradisaica.	Musa tertilis.	Agave americana.	Bromelia ananas,	Corchorus olitorius,	Corhorus capsularis.	Soccharum munja.	Saccharum sara.	Linum usitatiksimum.	Rice straw.	Bambusa mundinacea.	Saccharum officinarum (refuse).
V	B B D Ca B	B B C C B	W	 B A A	 A 	A	8 BB G : C C	: : : : : : : : : : : : : : : : : : :	В А 	B B B	 В В 	 B B.	B B A		В :В :G ::	В :: ::	B B .: .: B	B C B
	C D C	B	0 80	 	 A A	 X	000	:::	 	C D C	c :::	 :::	В А 	:: :::	B C B	000	B C C	C
	Б Б Б Б	C B A	В В В В В	A	D	D A 	C B B B C	:: :: :: ::	:: :: :: ::	В В В В В В С			В А А	 	B B B :: D	воовоо :	B C C : C C :	B C B C D
•••••	 B		<u></u>	 	,, ,,	 'B	ië ë		 :::	B C	 : 	 	 	 	 	ë	ico	Ö
	B	в в	 B B B				 B B B		::: :::	 B B B	 				 B 	C B C	 B 	;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
	B C B	B C A	B C B	А В А 	 B		B C B		 В 	B C A			A A 		В В 	.C C C B	В С С 	B C C
	D	F C B C B	 D 	A B B B B	 В 	D	F B B B		B	B			B B A B A		B B B B	B C C C	B B C C C B	B C C C C B
						Б 	В 		 	 В 			Б 		В 	 Ĉ	Б С 	 Ĉ
	R C B	B C B	B C D	A A	A	B B 	 B	 В 	:::	B		 	B		В	B	B Ĉ	 Ö
*****	B	C BC	B	 А	В А В	B D 	D B B		:::	D B	::: :::		¨		B B B	B C B C	C B A	B C C
	B B	F	B	A			B B 			B C B B 			B			B C B	B 	D

290. Some of the plants named above are cultivated for economic purposes, and the names of the districts where they are grown, the cost of cultivation and preparation per beegah, the yield per beegah, the selling price of produce per maund, and the cost of transport of produce to Calcutta, are shown in the following table:—

Names of districts and fibrous plants.	Cost of cultivation per beegah.	Cost of pre- paration per maund.	Yield per beegah.	Selling price of produce per maund.	Cost of trans- port to Calcutta.	
Burdwafi—			To another the second s			
(1) Sunn (2) Flax	As jute Re. 1-0	As jute	As jute 2 maunds	Rs. 5 per maund.		Seed.
Bancoorah-						
Mesta Jute Sunn	Re. 1-0 , 1-4 , 1-2	 	3 to 6 maunds 3 ,, 6 ,, 2 ,, 3\frac{1}{2} ,,	Rs. 2 }	8 to 12 annas per maund.	
Hooghly	***************************************	,	*********		1 pie per maund	
Howrah-		•			per mile.	
Jute	Rs. 4-4	Re. 1-10	3 maunds	Rs. 2-8		!
Luckhipori jute Hemp Coconnut Plantain Dhoncha Pine-apple Betel Dhenros	Re. 5-0 Rent only Rs. 10 For 2 years Rs. 100 Rs. 14 for 2 years , 50	Rs. 2-8 ,, 1-8 	18 to 24 maunds 3½ maunds 8½ , 250 trees	, 6 , 75 , 2 , 9 , 100 per beegah		In 3rd ye
Nuddea—			•••••	" I per plant		
	Re. 1-8		26 seers	Rs. 4 to 5 per md.	Rs. 4 per maund	
Jessore—				l por mar	per cart.	
Country produce					Rs. 15 to 20 per	
24-Pergunnaus.					100 maunds.	ł
Dum-Dum-						
Dhenros	Rs. 8		Rs. 16 to 20		13 annas per md.	
Pat Sunn	" 9 " 10		, 18 , 20		,,	
Narikel	1 anna per tree per ann.		,, 1 per tree per		,,	
Tal Betelnut	6 pie " " … 3		8 annas ditto	-	33 35	
Plantain Pine-apple	Rs. 10 annually per		Rs. 50 per beegah		17	
Rice straw Bamboo Sugarcano	" 10-4 ditto		, 13 , 16 , 40		,, D	
Moorshedabad-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					ļ
Hemp Flax Sugarcane Bamboo Sunn Dhenros Plantain	" 16 " 5 " 3 " 2 to 3		Maunds 3 , 4 to 5 , 4 to 5 , 2-5 to 2-10 , 5 to 6 , 6-10	Rs. 6 to 12 per 100 A to 5 per md.	As. 3-9 per md. by rail, & Rs. 20 per 100 mds. by boat. Rs. 20 per 1,000 mds. in rafts.	
Maldah—			1	1	Rs. 40 to 50 per	
Produce Bogra—	,,,,,,,,,,				100 maunds, plus cost of car- riage to Rajme- hal station.	
Mesta Sunn Akond	Rs. 3 to 3-10 , 3 to 3-5 , 1	 :::	Maunds 2 to 3 1-26 to 2-13 26 to 33	Rs. 2-8 to 3	nai aution.	
Hemp Cocoanut Tal Betelnut	,, 13 to 15 ,, 50 to 66 ,, 10 to 13 ,, 41 to 50	 	, 60 to 66 , 26 to 33 , 60 to 66		·	,
Keora Mudya	, 3-5 to 4 , 8-5 to 10	***	# 6-26 to 8-13			
Lanthana Plantain	,, 8-3 to 10 ,, 10 to 13-5	•••	" 6-26 to 8-13 " 13-13 to			
Pine-apple	" 5 to 8		16-26. " 10 to 13-13			
Shor	" 2-10 to 8-5 " 3 to 4					
Rice Bamboo	,, 6 to 6-10 , 10 .to 13-5	•••				
Sugarcano Goalparah—	" 16·10 to 20	•••			Re. 1 per maund	
Mymensing—				120211111		
0	Rs. 4-10	Rs. 6-14	Maunda 3-13 to 8-28	Rs. 10 per maund	12 annas per	
Sunn Pipperah—		-40. A.Y2 111			manud,	
Produce		j	*******	********	Rs. 12 per 100 mds. by coun- try boats.	•

ames of dis fibrous p			C		cultiva eegah.		Cost of pre- paration per maund.	Yield per beegah.	Selling price of produce per maund.	Cost of transport to Calcutta.	
rhoot—											
Dhenros			Rs.	12				Fruit 15 mds. 15	Rs. 4 por maund.		
Pat			••	11-12				Rs., & fibre 5 mds.			
Sunn	•••		,,	9.8				8 ,,			
Akond			37	7-8		•••		4 ,,			
Hemp	•••	•••	**					4 ,		1	
Tal	•••	•••	**	9	₹.			15 ,,	Re. 1 per maund.	!	
Keora	•••	••••	**	8		•••		Scent Rs. 50, 4	•		
Kola		ł		8				maunds of fibre. 6 maunds of fibre	•		
Pine-apple		••••	**	12-8		•••				1	
Line-sphi		•••		0.0				3 , ,		l i	
Munja	•••		**	6-8				5 ,, ,,			

291. The district officers consulted name the following plants, not included in the circular of the Government of India, but growing in their districts, as likely to yield fibres suitable for the manufacture of paper. I

have added the botanical names of such of the plants as I have been able to identify, but several of them appear not to be known to science.

I. Sthala padma (Hibiscus mutabilis).—See paragraph 10, page 2.

II. Bon-harul (Hibiscus strictus).—See paragraph 11, page 3.

III. Suryamani (Hibiscus hortus).—Flower middle sized, scarlet. Very common.

IV. Dhoncha (Sesbanea aculcata).—See paragraph 22, page 6.

V. Khirui (Mimusops Kauki,.—This is a large tree, common in most parts of Bengal. Its flowers are middle-sized, yellowish white, faintly tinged with rose. An unctuous fluid exudes from this tree.

VI. Anantamul (Hemidismus indicus.)—Common all over lower Bengal.—This is a shrubby, delicate-looking but thorny plant, with flower 2½rd line, on the outside pale green, on the inside dark blood-colored. Its roots are extensively used as a substitute for sarsaparilla. "The natives employ them particularly for the thrush in children, giving about a drachm every morning and evening of the powder fried in butter."

VII. Phul Kasturi (Hibiscus abelmoschus).—Common all over lower Bengal.

"'A plant so named from the Arabic hub-ool-mooshk, in Hindee Mooshkdana, or musk seed. The seeds have been so named on account of their odour. The plants abound in mucilage, and are much employed in the north-west of India

in clarifying sugar."

VIII. Hunmanto.—Howrah.—"A hollow-stalked water-plant, grows only in the south of the district. Its leaves are palmated and divided into five broad points. It closely resembles the Calatropis gigantea, and has a flower very similar (in general appearance) to that of the Hibiscus cannabinus. Its fibre is very white, but poor and short. It is used for making the rope with which the natives tie together their wattle fences."

IX. Noná (Anona reticulata).—A middle-sized tree; flower largish, yellowish green, of a vinous smell, producing large heart-shaped fruits, whence its common English name, "bullock's heart." The substance of the fruit is very like that of the custard-apple, to which this tree is closely allied. Common

all over Bengal. X. Atá (A

K. Atá (Anona squamosa).—The well known custard-apple of Bengal;

common all over Northern India.

XI. Jhápi Tepári; Kát sholá.—The Collector of Furreedpore says.—"The names given are those by which they are known in this district; but whether or not fibre can be extracted from them for any useful purpose can only be ascertained by actual experiments; the people of the country never do so. These plants are, however, not cultivated; they grow wild in the villages, and are not obtainable in any quantity."

XII. Golancha (Menispermum glabrum or cordifolium).—A climbering, shrubby weed common all over the country, growing in drains, on old rubbish mounds and wild places. Its stalks are rich in farina, which is largly extracted

for medicinal purposes.

- XIII. Murgá, alias Muragjatá (Celosia cristata).—An ornamental garden plant, common all over Bengal and Northern India generally. The Collector of Hooghly says—" This plant yields excellent fibre, very extrong and flexible. Rope made of it sells at Rs. 25 per maund, while jute rope fetches only Rs. 5 or Rs. 6. It grows abundantly in the Burdwan districts, but it is not much cultivated in Hooghly. There are two kinds of Celosia cristata, with red and yellow flowers respectively; but only the red variety appears to be known in this district. The plant grows to the height of about six feet, and has large flowers with a velvety appearance. The red variety is sometimes called Lal Murga, and the other Huldi Murga."
- XIV. Bábui, Bábui tulsi, Bábui ghás (Ocymum pilosum).—A species of basil common all over Northern India. In Bengal it is grown almost everywhere for its seeds, which become emulscent when steeped in water, and are largely used by Muhammadans in cooling drinks or sherbets. According to the Collector of Hooghly—"it is cultivated to a small extent in the western portion of the district on account of the strong fibre it yields for rope making. The rope made, however, is only fit for use in the dry season; in the rains it rots quickly. The plant is fragrant and aromatic; it flowers nearly all the year round, the flowers being white. The stem is much branched and is ascendant; leaves small, oblong; quite entire petioles and verticils very hairy; racemes elongated; corolla usually glabrous, small and white. It is also used by the natives for medicinal purposes." I have not heard of this plant being anywhere else cultivated for its fibre.
- XV. Khákrá (Saccharum spontaneum).—Wild and common all over Bengal, in marshy places. It is a perennial plant, and its stems are used for making mats, thatching houses, and other economic purposes. Buffaloes are fed on this reed. It can be procured to any extent.
- XVI. Ulu grass (Abroma augusta).—This grass grows wild in almost every part of Bengal and Northern India. It is prized highly for thatching, as its leaves do not rot near so quickly as paddy straw does. Paper has been made of it at the Bally Paper Mill, which appears to be as strong as paper made of jute.

XVII. Jawar, makka, bhutta, (Zea mays).—Maize, or Indian corn, common all over India, cultivated for the corn, the stems being used for fodder. The seed coverings are said to be rich in fibre, fit for paper-making.

XVIII. Kúsha (Poa cynosoroides).—A wild grass common all over India, used extensively in religious ceremonies, and in the manufacture of coarse mats for religious purposes. Its stems are much stronger than paddy straw, and grow to a height of 5 to 6 feet.

XIX. Kokalota.—Jessore.—"Yields a strong fibre."

XX. Ratan, cane palm (Calamus rhotang).—Jessore.—"The bark of the ratan, which grows so extensively in the Jessore marshes, may also be utilised for the purpose of manufacturing paper and ropes."

XXI. Suchphor.—Moorshedabad.

XXII. Kodal tree.—Cuttack.

XXIII. Udal tree (Sterculia villasa).—Assam, where "it grows wild and is sold at Rs. 2 per maund." Hazareebaugh.—"This is a tree, and it grows to a height of about 15 or 18 feet, and is nearly 5 or 6 inches in diameter." It also grows in Cuttack.

XXIV. Seeli nuta.—Cuttack.

XXV. Sooan moi.—Cuttack.

XXVI. Kallia moi.—Cuttack.

XXVII. Ponassi Grass.—Cuttack.

XXVIII. Pata (Sida lanceolata). - Grows wild all over Bengal; root

intensely bitter and stomachic according to Dr. Ainslie.

XXIX. Lol and Suffaid Buriala (Sida rhomboida and Sida rhombigola).—
"The Lal and Suffaid Buriala are well known in their natural state; they are short and bushy. The Sida lanceolatea (Pata) also grows wild, but the roots are used largely by natives as a medicine. It has a bitter taste, and is useful as a tonic."

XXX. Kissickee.—"Lepcha 'Kissic,' the name of the plant, 'Kee' the fibre, or Zugay, Bhootea name."—Darjeeling.—"A small tree, about 15 feet high and about 6 inches in diameter when of mature growth. The bark is not taken from the main stem. The branches, when about a year old, having attained a length of about 5 or 6 feet, are lopped off; the bark from them is peeled off and scraped on both sides with a knife, the centre is thus left clean and white; it is then dragged into long fine shreds, like thread, and dried in the sun. When dry it is twisted into string. The Lepchas and Bhooteas prize it greatly for making fishing-nets and bow-strings. It is not cultivated, but grows wild at elevations from 4,000 to 5,000 feet. It cannot be obtained in any great quantity."

XXXI. Kullihume, Lepcha; or Kulhim, Bhootea.—Darjeeling.—"This grows to a tree of considerable dimensions, but the bark is taken only from young saplings about 4 or 5 inches in diameter and about 12 or 15 feet in height. The bark is loosened from the young tree, and while it is being dragged off the tree is battened with the back of a hill-man's knife right down the length of the stem, so as to keep loosening it and prevent its breaking off short. When long strips of bark have been thus obtained, it is steeped in water; and when soft, the outer or harder part of the bark is pulled off with a knife, and the softer or inner portion dried in the sun. When dry it is twisted into a stout cord or rope, which is very strong, and is used for tethering cattle.

The plant is found in the valleys, about 3,000 feet above sea-level."

XXXII. Keying, Epcha; Pooah, Nepalese.—Darjeeling.—"This plant is best known by its Nepalese name, Pooah. It is a small shrub, attaining a height of from 4 to 6 feet, the stem of which is from half to three-quarters of an inch in thickness. It is found at elevations ranging from 3,000 to 4,000 feet. The plant grows wild, and is not very abundant; it is not cultivated, but no doubt could easily be propagated. The bark is peeled off in long strips and boiled in water mixed with ashes. When considered soft enough, the vessel is taken off the fire, and the contents allowed to remain steeping in the water and ashes for two or three days or more. It is then well washed in water until the woody and vegetable matters are removed, and the fine fibre alone remains. This is a very strong fibre. The natives use it for making fishing-nets and for bow-strings; it is prized next to the Kiffic.

"When carefully prepared, the finest silky fibre can be produced from this plant, from which it is said a fabric can be manufactured as fine or finer than the China grasscloth. The value of this (and indeed of all the fibres) is much deteriorated by the very crude and primitive method of obtaining it."

XXXIII. Cisnoo.—Nepalese; Cuzzu, Lepcha.—Darjeeling.—"This is a nettle, best known by its Nepalese name, Cisnoo. There are two or three varieties. The description most approved, indeed the only description the fibre of which is utilized, grows much taller than the others, and has a much larger leaf; it will grow to 10 or 12 feet in height. It grows wild at elevations from 4,000 to 7,000 feet, and is very abundant. The process adopted for obtaining the fibre is the same as that resorted to with the Pooah plant just described. A stout coarse cloth is manufactured from it by the hill people * * *. In the estimation of the natives of these hills, these fibre-yielding plants, if classed according to their worth, would range as follows:—Ist Kiffic; 2nd Pooah; 3rd Cisnoo; 4th Kulli-hume."

XXXIV. Paper plant.—Da, Lepcha, Kahguttea, Nepalese. Darjeeling.—The Deputy Commissioner of Darjeeling describes this plant as follows:—"This elegant shrub produces a very fragrant, small white flower; the leaves are of an elongated formation, smooth, and of a rather dark colour. The bark is whitish or greyish, and of an exceedingly tenacious texture. There are two descriptions of this plant, viz. da-nah and da-say; the former is found on the heights at an elevation of about 7,000 feet, and is most esteemed; the latter in the valleys, in a warmer temperature, and will not make good paper. The bark is stripped off, well dried, and then boiled in water and ashes. When soft it is well washed, then pounded on a stone. The coarser and hard portions are picked out, and the finer pulp spread over sieves made of fine cloth, stretched tight across wooden

frames; these sieves are put out in the sun, exposed to the wind to dry. When the pulp is dry, the process is finished, and the result is a coarse paper of a light brown colour, which is very durable." I have no means of ascertaining whether this is the same with the Daphne described in para. 268.

XXXV. Epiripeun.—Maunbhoom.—" Epiripeun, baruts, or balamra, grows throughout almost the whole of the district as a small under-shrub, consisting of two varieties, one the red and the other the pale variety; leaves alternate; lanceolate and serrated; flowers yellow, having bracts which remain adherent to the capsules; petals fine."

XXXVI. Kookoirbichi.—Maunbhoom.—"Is a plant which grows in a wild state, herbaceous, rising to about 5 or 6 feet in height, leaves alternate,

alanceolate."

XXXVII. Amrool, common in Bengal.—"Herbaceous rising to the height of about 6 feet. The fibre which this plant yields is not very strong."

XXXVIII. Shocara Lata.—Maunbhoom.—"A creeping plant, which grows chiefly on the hills. The leaves of the plant are kidney-shaped, large, thin, soft, with soft down-like substances. On the flat sides the veins, about 13 in number, all radiating from the end of the leaf-stalk; the plant is said to flower in the spring. The flowers are said to be white and red mixed, and resembling those of the cotton plant. The bark of this plant is taken out generally in the rainy season, and used for the preparation of ropes. This plant may also be utilized in the manufacture of paper."

XXXIX. Booch and Asta.—Maunbhoom.—" mom the membraneous barks of these plants ropes are made, and which may be made serviceable in

the manufacture of paper."

XL. Kounji.—Hazareebaugh.—" This is a large tree found in the jungle."

XLI. Katmahuli.—Hazareebaugh.—"This is a small tree; grows to a height of less than 20 feet."

XLII. Kumbhi.—Hazareebaugh.—"This is a large tree found in the jungle."

XLIII. Dhamun.—Hazaroebaugh.—"This is a tree which grows to a height of 20 feet."

XLIV. Noye.—Rungpore.

XLV. Chow.—Rungpore.—"From the bark of which the fishermen prepare fibres for their fishing baskets. These fibres grow round the top of the tree,

and is very strong."

XLVI. Prass.—Gya.—"There are two sorts of fibres extensively used here for binding thatches, &c., from which paper may probably be manufactured. These are the fibres called prass and mohlan. The former is prepared from the roots of a tree called porass. The porass and mohlan grow in jungles in the southern parts of the district. The price of porass is Rs. 2 per maund."

XLVII. Mohlan.—Gya, Hazareebaugh, &c.—"The mohulan is a plant found easily in the forests. Its fibre is called Chope, which is used as string. This is a creeper like a vine. It stretches on the tree to a length of more than 200 feet. The fibre is peeled in the summer season. The fibre is peeled by the residents of the jungles and brought to market for sale. Price at less than Rs. 2 a maund."

XLVIII. Joon.—Maunbhoom.

XLIX. Boncapas.—Hibiscus vitigolius, common all over India; a wild plant leaving large yellow flowers with a purple eye during the rainy and cold season. According to the Deputy Commissioner of Lohardugga "there are two plants of this name. Both are fibrous and very common. The fibre is said to be exceedingly white, fine, and strong. They flower in September and October, and the fibre is procured by steeping."

L. Lottoli.—Maunbhoom.—"Annual, herbaceous; grows from 2 to 4 feet in a wild state; leaves abcordate, toothed, the two sides furnished with minute down-like substances; flowers small, yellow, cepals five, petals five, other parts too minute to be distinguished with the naked eye. Capsules, almost spherical.

marked with spines all round. The stem has on it soft white hairs."

LI. Cheynch or Cheynchoo.—Lohardugga.—"This plant, of which there are also two kinds, is said to possess an exceedingly strong and smooth fibre. One kind produces a long seed-pod, while the other produces a round one; the flowers

of both are small and yellow. The fibre of the round-podded one is said to be much the finest and best. Both these plants, I should say, are capable of cultiva-

The fibre is produced by steeping, and the plants cut when half grown." II: Chakwan.—Lohardugga. "This plant is one of the commonest weeds in the district; it is found growing thickly everywhere. It is said to possess

a very fair fibre."

Kassaundun.-Lohardugga. "This plant is said to be closely allied LIII. The fibre of the Kassaundun has to be steeped in order that to the Chakwan. the fibre may be detached."

Chipari.—Rajmehal. "A jungle creeper made into ropes by the

Sonthals and sold in Rajmehal, Sahibgunge, and Bhaugulpore."

LV. Sacssigosh.—Assam. "The bark of Sassee occasionally used for writing is sanchi pat or bark of the sanchi tree. The Sanskrit agar or agaru is found in the hills, and is used as substitute for paper."

Kukursuta.— Assam. LVI. LVII. Fak Dima .--LVIII. Makori sopa.— Do. LIX. Garokhia karoi— Do. (Two species). LX. Pamal.— Do. (Creeping plant). LXI. Ghilalota.— Do. (Creeping plant). LXII. Dhakiatota.— Do. (Creeping plant). LXIII. Bogilota.— Do. (Creeping plant). LXIV. Tara.— Do. LXV. Patidai.— Do.

Rakta-simul, Simul (Bombax malabaricum).—Common all over Bengal. "This large and stately tree grows in most parts of Southern India; it reaches a great size in the Bombay Presidency, where, both on the coast and inland, it is one of the most common trees, and there the planks are extensively used in making the light packing boxes used in the export of bulky goods from Bombay and other places; also for fishermen's floats when the Adansonia is not at hand."

"The red cotton tree is common throughout Southern India; it is abundant in the plains of British Burmah, where its light and loose-grained wood is used for coffins. A cubic foot weighs 28th. When the trees grow large, the stem spreads out towards the base, at intervals, into buttress-like projections. spring huge magnolia-shaped searlet blossoms cover the trees, and in some places the young flower buds are cooked and eaten. The cotton is used for stuffing cushions and pillows. In a full-grown tree on good soil, the average length of the trunk to the first branch is 60 feet, and average girth measured at six feet from the ground is 15 feet. It yields the moocheeras resin, and its roots constitute the safed moosli of the bazaars, which, powdered, forms a thick mucilage with cold water, and answers admirably as a nutricious demulcent for convalescent persons."

LXVII. Hal, Loa, Gunda, Gila, (Bauhinia scandens).—Assam. This trailing, climbing Bauhinia has small whitish flowers, which turn to a yellowish colour. It runs up over trees of the largest size. Its fibrous bark is made into cloth and rope, but the fibres are harsh and stubborn.

Gulkandar (Stirculia vellosa).—Assam. "A large tree of the Dekhan and in the mountainous countries to the eastward of Bengal, common in many places in the outer hills of the North-Western Himalaya to 3,600 feet or more, up to the Indus, and occurs in the Salt Range. It has a straight trunk with a smooth bark; leaves palmated, five or seven lobed. The bark can be stripped off from the bottom to the top of the tree with the greatest facility, and fine pliable ropes may be made from the inner layers, whilst the outer yield coarser ropes. The rope is very strong and very lasting, wet doing it little injury. In Southern India elephant ropes, and in Bombay bagging, are made of it. In Dehra Doon good paper has been made from it."

LXIX. Jeebun (Sponsia orientales) .- Assam. "A small erect tree of Ceylon, the Coromandel Coast, common along the foot of the Ghauts, and occurring in the Kennery forests, Salsette, in Nepaul, Bengal, Sylhet, and Assam."

Roxburgh says it is neither useful nor ornamental. Voigt mentions that "the under-bark consists of numerous reticulated fibres, and forms a natural cloth used by the Garrow race, and that its leaves are used for polishing horns."

LXX. Buriar.—Lohardugga. "Shrub growing from two to five feet high, yields a very strong fibre, much appreciated on account of its toughness and durability, and chiefly used for cattle-tethers; cut immediately after flowering in September, and when half-grown, fibre detached by steeping."

LXXI. Cotton.—Too valuable to be used in its fresh state for paper.

292. The district officers, who have been consulted by the Commission, are unanimously of opinion that the production of fibres other than, what are now already in the market, will not, and considering their want of capital, cannot, be earnestly taken up by the cultivating classes in these provinces, until the presence of a real and permanent demand for them is generally known

cannot, be earnestly taken up by the cultivating classes in these provinces, until the presence of a real and permanent demand for them is generally known and felt. Indeed it is almost on all hands admitted that much valuable fibre, which might with little trouble and less cost be made suitable to the manufacture of paper, and even of cloth, is now absolutely wasted in all parts of the country from want of due attention and encouragement, and unless some impulse is given to the people, either by the action of Government or by private enterprise, it is hopeless to expect that the boundless supply of valuable fibres which the fertile soil of the country is perennially yielding will ever be utilized by local industry.

Dr. Royle suggests the establishment, in the interior and at short distances, of depôts for the collection of fibres. If such a project could be carried out and fair prices are offered for different fibres of stated qualities, I have no reason to doubt that the agricultural classes would soon and readily be induced to engage largely in extending the cultivation of plants already grown for their fibres or for other use, in cultivating new plants which, being suitable to the soil, may yield fibre of higher value in the market, and in extracting fibre from those plants which are generally known to be growing spontaneously, but of which no use whatever is now made.

It seems to me that an impulse may also be given to this new branch of industry by attaching to the experimental farms, now in course of introduction into these provinces, a small establishment, which should at first be employed in drawing out fibres after the most approved methods from plants grown on the farms, or growing spontaneously in the vicinity of the farms. If the fibres thus produced should be found to be useful for manufacture and remunerative in their returns, the Government may perhaps, in the absence of private enterprise, well constitute these farms depots for the collection of fibres from the neighbouring agriculturists, provided the prices at which produce is bought up at the farm leave a margin to cover the cost of collecting and transmitting it to the seat of manufacture.

When once the peasantry find out that the plantain trunk, which is allowed to rot where it is cut down, the linseed plant, which is generally thrown away, and the wild plants, which are plentifully growing around them, neglected, or noticed only to be destroyed, can, by a little labour and at almost no cost, be easily converted into products which will add to the income they already derive from their own accustomed crops, it is clear that the cultivation and preparation of fibres will be readily undertaken by them.

When the industry is once fully developed and appreciated by the agricultural classes, the Government can easily withdraw from the field, leaving private enterprise to take its place.

293. In conclusion, I beg to record my grateful acknowledgments to the different officers of Government who have favoured me with information regarding the subject of my inquiry, and whose assistance has helped me so materially in preparing this report. To Dr. E. McDonell, Managing Director of the Serajgunge Jute Company; Baboo Huris Chunder Roy, Zemindary Agent

at Rungpore of Moharani Surnomoye; Roy Protap Chundra Borua Bahadoor, of Gouripur, Gowalpara; Baboo Joykissen Mukerji, of Wooterpara; Baboo Raj Kumar Roy Choudhuri, of Baruipur; and James Gordon, Esq., of the Gouripur Mills, I have also to express my thankfulness for the ready aid they have afforded me by furnishing me with a variety of details regarding the cultivation, manufacture, and trade in jute. To the first two gentlemen I am particularly indebted for the assistance they rendered to the Commission during our tour in Serajgunge and Rungpore.

Cara Maria

I have the honor to be,

Sir,

Your most obedient servant,

HEMCHUNDER KERR,

Deputy Magistrate, on Special Duty.

APPENDIX A.

No. 1.—AGRICULTURAL DEPARTMENT,—Calculta, 4th February 1873.

THE Lieutenant-Governor has several times remarked that this Government is sadly wanting in industrial statistics, and he trusts that an attempt may soon be made in some shape to supply the want. But meanwhile he would much desire to get some information regarding our greatest commercial staple-jute: where and how it is grown; from what plants; what are the qualities and varieties; how it is prepared for the market; how brought to market; and through what hand it passes, &c., &c. Gentlemen who have come out from home with a practical interest in such questions have lately asked His Honor to answer some of them, and he has been unable to answer them. He has long sought such information himself, and has been unable to get it with precision. An inquirer is constantly beset by the pitfalls caused by the varieties of language and of translation. Mr. Campbell does not know to what language the word jute belongs, nor what it really means. The fibre or fibres commonly called jute are called by the natives by various names, some of which are also applied to other fibres. The Lieutenant-Governor has been shown on the ground, by competent persons, two very distinct plants, each of which was asserted to be kostah, generally supposed to be the most specific term for jute; and he cannot discover whether the whole of the jute of Eastern. Bengal comes from the same plant as what is called the desce or country jute of the districts about Calcutta; in fact, whether the jute of commerce is the product of one plant, or of two or more plants. He has seen it asserted in one report that jute is an export from Bengal to Orissa, and in another that it is an import from Orissa to Bengal. He has been told by very competent men that the quality of the jute brought to market is deteriorating, owing to reckless extension of cultivation in lands not fitted for the purpose; by others, that it is not deteriorating at all. Be that as it may, the question to what extent jute may be extended to new fields, to new districts, or to new provinces, (as to Assam and Burmah), and how far our soils will bear long cropping with it, is one of enormous importance. Mr. Halsey, the Officiating Commissioner of Cotton and Commerce, has been good enough to point out to His Honor some papers showing that the Americans are actively prosecuting the experimental growth of jute in various parts of their country, while we are, as a Government, doing nothing to extend it. Of almost equal importance is the question, whether the quality of the fibre can be improved by careful preparation, and what are the best processes for its preparation. The necessities of the jute trade must have a very great influence on all our plans for roads, railways, and canals.

2. The Lieutenant-Governor proposes, then, to undertake a sort of jute survey with regard to—

- 1. The present production including the districts and tracts where it is grown; the plant or plants and varieties of plants grown for jute; the soil and situation used in each part; the mode and cost of growing; the rotation practised; the quantity produced; the effect of various climates and conditions;
- 2. The extent to which jute cultivation has increased, and may be increased; the nature of the soils and climates in which it may grow; the degree to which soils are exhausted by it, and the degree in which they may be renewed by rotation, flooding or manure; the general prospects of the future production of the article;
- 3. The preparation of the fibre for the market; the present modes, and the improvements that might be effected in such modes;
- 4. The jute trade; the quantities exported from each district; the lines and modes of export; through what hands it passes, &c.;
- 5. All other matters bearing on the subject.
- This Resolution will accordingly be circulated to all Commissioners and District Officers, to whom will also be sent an explanatory memorandum showing what jute is; by what English and native names it is known; what is the character of the plant, its leaves and flowers; and what are the principal varieties recognized in commerce. Specimens of jute and of other fibres with which it may be confounded will also be circulated, so that each officer may make sure whether the fibres produced in his district are really the jute of commerce or something else. At the same time District Officers are requested to get together all the particulars and specimens they can, deputing, if necessary, one of their subordinates to collect the necessary information.
- 4. The Lieutenant-Governor proposes to associate a European gentleman, thoroughly well acquainted with the jute trade, with an intelligent native officer, and to ask them to prepare,

first, such a memorandum and specimens as have above been indicated, and then to visit some of the principal jute districts, to collect, collate, and sift the information obtained by local officers, and to furnish the Government with a report on the whole subject, giving a jute survey and a jute map of these provinces, and explaining all the points above mentioned, and as many others as occur to them, so far as the information at their command enables them to do so.

Ordered, that a copy of the above Resolution be published in the *Calcutta Gazette*, and be forwarded to all Commissioners and all District Officers for information and guidance.

By order of the Lieutenant-Governor of Bengal,

H. J. S. Cotton,

Offg. Asst. Secy. to the Govt. of Bengal.

No. 2.—General.—Calcutta, the 5th February 1873.

With reference to Resolution of the 4th instant, regarding proposed inquiry into the production of and trade in jute, the Lieutenant-Governor is pleased to associate. Mr. Hamilton Anstruther, Merchant of Calcutta, and Baboo Hem Chunder Kerr, Deputy Magistrate and Deputy Collector, in order to make the necessary inquiries and report. He desires that a copy of the abovequoted Resolution be forwarded to them, and that they be requested as soon as possible to prepare, in accordance with the terms of paragraphs 3 and 4 of the Resolution, an explanatory memorandum showing precisely what jute is, by what botanical, English, and native names it is known; what is the character of the plant, its leaves and flowers; and what are the principal varieties recognized in

commerce. They are also requested to select certain specimens of jute and of other fibres with which it may possibly be confounded, and to submit with their memorandum sets of such specimens for circulation.

Mr. Anstruther and Baboo Hem Chunder Kerr will then, after the preparation of their memorandum and specimens, visit at the most convenient season some of the principal jute districts in Bengal, and collect, collate, and sift the information at the disposal of local officers; and, after full inquiry, will furnish His Honor with a report on the whole subject, giving a jute survey and jute map of these provinces, and explaining all the points mentioned in the above Resolution, and as many others as occur to them, so far as the information at their command enables them to do so.

While employed upon this duty, in addition to their actual travelling expences, Mr. H. Anstruther will receive an allowance of Rs. 600 per mensem, and Baboo Hem Chunder Kerr will draw a deputation allowance of Rs. 150 in addition to his substantive salary with effect from 1st February 1873; the expenditure being debitable to Miscellaneous Improvements—(Provincial.)

laneous Improvements—(Provincial.)
Ordered, that a copy of this Resolution of the 4th instant, be forwarded to Mr. Hamilton Anstruther and to Baboo Hem Chunder Kerr,

for information and guidance.

Also that copy of this Resolution be forwarded to the Appointment Department of this office for the issue of the necessary orders in regard to Mr. Anstruther's appointment and to Baboo Hem Chunder Kerr's deputation.

Also that copy be forwarded to the Accountant-General for information and guidance.

By order of the Lieutenant-Governor of Bengal,

H. J. S. Cotton,

Offg. Assistant Secy. to the Govt. of Bengal.

APPENDIX B.

STATEMENTS RECORDED BY THE JUTE COMMISSION IN CALCUTTA AND SOME OF THE JUTE DISTRICTS.

No. 1.—Baboo Nundo Coomar Sha,—Calcutta, 3rd March 1873.

I have been in the jute business for the last twenty years, and have been working in Calcutta seven years. Before that I was at Serajgunge. For the last ten or twelve years the increase in the jute trade has been marked. There are several kinds of jute. The best fibre is that which comes to the Presidency from Serajgunge, and it is grown in Kankripara, Bullorampore, Chilmari, Bagia, Sholemari, and Cooch Behar. The color of this jute is white, with a golden tinge, and measuring some seven or eight cubits in length. Serajgunge is the largest jute market, and the villages of Shumboogunge, Bahadoorpore, Cassigunge, Pakoollah, Jamoorke, Moyrah, Ruttongunge, Bullah, Babnaparah, Shealkole, and Keshoregunge in Mymensing send their jute to that place. The jute which grows in the vicinity of Serajgunge is commonly called deswal. The villages of Bhatcal, Amirabadia, Nulchuriah, Backrabad, Shoralia and Kureemgunge in zillah Dacca, grow jute largely. That grown at Backrabad and Kureemgunge is very good, and ranks with the jute obtained from Kankripara, Bullorampore, &c. The staple exported from other parts of Dacca is known by the name of Naraingunge jute. All these places send their jute to the mart of Naraingunge for sale and export to Calcutta. The fibre is from five to seven cubits in length, and of a greyish color. The pat known as Deora is exported from Gopalgunge in zillah Furreedpore. Janipore and Pubna produce jute which is called "Janiporiah" jute, measuring five or six cubits in length, and of a reddish color. All the desi pat comes from Kanchrapara, Bidyabatty, Nyhattee, Dum-Dum, Belgatchea, &c. This fibre is generally from five to eight and even nine cubits long and has a dull color; some are white and whitish grey. Jute grows on doasla lands, i.e., a mixture of clay and sand. The land is tilled and ploughed in the months of Chaitra and Vaisakha (March, April and May), when the sowings are begun. The crop is reaped in the month of Ashadha (June and July). Too much moisture is not good for Jute, but moderate showers of rain aid its growth.

As a rule jute is not grown under advances. The ryots grow it of their own accord and on their own account and take to the nearest hat or market, where they sell it either to the servants of the mahajuns or to fureahs, who either buy it for the former, for which they receive a commission of one to four pie per maund, or on their own account. In the latter case, they watch the market, and dispose of their investment as soon as they find the price rising. The jute is then tied into morahs (hanks), and brought to the jute depôts, such as Serajgunge, Naraingunge, &c., where it is purchased by the traders who tie it up in drums and send to Calcutta. Jute is sent to Calcutta from Naraingunge, Serajgunge, &c., &c., either by boats or steamers all the way, or partly by steam boats and partly by rail from Goalundo. The jute on arrival in Calcutta, if it is the property of the mahajun who has a firm here, is removed to his godown; if not, it is removed to the agency house or arat of somebody, who not only charges rent for the keeping, but one anna in the maund by way of commission. As a rule, these aratdars or commission agents advance to the owners of jute thus brought to them twothirds of the estimated value of the article. These aratdars dispose of the jute to the large jute merchants in the Presidency. I know what is called the mesta pat, it is grown in small quantities in places near Calcutta, such as Nychatty, &c. There is a fibre-yielding plant called dhunchia. The stems are used for fuel and the fibre for cordage. It is never bought or sold as jute. The price of the best jute now is Rs. 3-12, that of the most inferior kind is Rs. 1-10 per maund. The Deora is selling at Rs. 1-10 per maund; the price last year was Rs. 5-12 to 6-0, and Rs. 3-0 to 3-4 a maund. Last year's high price and the steady increase of price year after year induced the ryots to extend the cultivation of jute at the expense of the rice crops; the expectation of the growers, however, has not been fulfilled, and it is safe to anticipate that the cultivation will not be so large next season as it was in the season gone by. The jute plant must be soaked in order to get the fibre; the clearer the water in which the plant is soaked the better the fibre.

No. 2.—Baboo Khetter Mohun Boss,—Calcutta, 5th March 1873.

I live in Calcutta and have been in the jute business for the last 25 years. The increase in the demand for jute has been marked from the time of the Russian War, and particularly so since the American War. It has since gone on increasing steadily, and for the last three or four years the export of jute from the Presidency has been very large. Prior to the Russian War about 50,000 to 150,000 bales, each bale containing 300 pounds of jute, used to be sent to England, America, and France yearly. After the commencement of that war till the outbreak of the civil war in America 300,000 to 500,000 bales of jute were annually exported. When the civil war commenced, the export of this fibre was increased to 700,000 and gradually to 900,000 bales. There has, in short, been a gradual increase of this trade, and at the present time, the jute exported to the European markets is from 1,000,000 to 1,300,000 bales. The fibre received from Scrajgunge mart is of several kinds, but two of them (the uttariya and the deswal) are considered to be good on account of their color, strength, and length. uttariya (northern) jute is grown on high lands, and the deswal, generally, on low lands. The uttariya pát, some 15 years ago, measured as long as 15 feet in length with fine clean buts. As the demand has been increasing, and the cultivation extending, the quality of this once very good jute has been year after year deteriorating. It is now only four to eight feet long with unclean buts from six inches to one and a half feet. The deswal was formerly six to ten feet long, it is now generally four to eight feet. The present price of uttariya is Rs. 2-12 to 3-14 per maund. Last year, it fetched Rs. 4 to 5-8 per maund. The price of deswal at the present time is Rs. 2-6 to 2-11. Last year's price was Rs. 4 to 4-12. Noarhaut, Raneegunge, Mohungunge, Kamarjani, Chilmari, Sholemari, Bego, Teamari, Kankripara, Gouripore, Cooch Behar, Bullorampore, Bhotemari, Kankina, Kaligunge Acolia, Ghoramárá, Báooréy, Shálmári, Pátákáta, Goberdhone, Boorir Hât, and Chackarchur, grow uttariya pát. My-mensing, Pingua, Doál, Jhárcátá, Mothoorápáráh Cootubpoor, Gossainhati, Sonamookee, Chunderkona, Ryegunge, Shumboogunge, Bádulpoor Cassigunge, Pooteyjáni, Dehooléy, Luckhigunge, Bágoonbariáh, Babnaparah, Gheor, Sháduckpore and Koijooli, grow the deswal.

The other jute mart is Naraingunge in Dacca. The fibres received in Calcutta from this mart are called Báckrabadi, Naraingunge, Kureemgunge, and Amirabadia. The Backrabadi jute is the best, also Kureemgunge, the fibre being six to eight teet long; the Naraingunge fibre is from four to six feet long; and Amirabadia three to five feet long.

This fibre, which finds purchasers in the Naraingunge mart, has also deteriorated, but not to the same extent as the Serajgunge jute. The color of Serajgunge jute is much better and more durable than the color of Naraingunge jute,

which turns reddish in a short time. The present price of this fibre is Rs. 2-6 to 2-10. During the last season, it fetched Rs. 4 to 4-8 per maund. There is another kind of jute called deorá, of which there are two sorts, viz., Gopaulgunge deorá and Mádaripore deorá. There is also a kind of deorá pát which comes from Shodepoor in Furreedpore.

Gopaulgunge deorá is four to seven feet long, of a grey color, and of a coarse and brittle fibre. Price this season is Rs. 1-14 to 2-1; price of last year Rs. 2-12 to 3-4 per maund; none in stock at present.

Mádaripore deorá is three to five feet long, of a reddish color, and of a coarse and brittle fibre. Price this year Rs. 1-4 to 1-10 per maund; last year Rs. 2-12 to 2-14.

Shodepore fibre the same as Mádaripore; price this year Rs. 1-4 to 1-8 the maund; last year Rs. 2-12 to 2-14 the maund. This jute is wrought into cordage in Calcutta.

The country jute commonly known as desi comes from 24-Pergunnahs, Hooghly, Nuddea, Culna, &c. This fibre is soft and clean, being four to twelve feet in length, but it is not strong. Its present price is Rs. 2-4 to 2-12 a maund.

The Serajgunge jute is in greatest demand; jute comes for export also from Booritolláh, Fooltollah and Toolsheegunge in Rajshahye. The fibre is soft and clean, but weaker than the Serajgunge jute; it is four to seven feet long. The value this year is Rs. 2-10 to 2-12 a maund; last year it was Rs. 4-4 to 4-8. Jute at present received from Doolalgunge, Patchaguriah, and Ryegunge in Dinagepoor was not an article of export in days gone by, but the Greek merchants have, during the last five or six years, been exporting it. There was a brisk export of this variety for two years, but last year the people in England complained of the weakness of the fibre, and a small quantity only has been exported this year. The fibre is four to seven feet long, of a reddish color, but it is weaker than any other class of jute. Gunny is chiefly made of this jute. The color of jute greatly depends upon the quality of water in which the plant is steeped. Muddy water gives the fibre a muddy color; clear water, a fine color. After the seed has germinated frequent moderate showers of rain help the growth of the plant. The charge of pressing jute bales of 300 lbs. each is Re. 1 per bale; Re. 1-5 to 1-7 is the charge of pressing a bale of 350 lbs. This is the charge of a press worked by manual labour, the charge of the screw-press worked by steam-power is Re. 1-8 for a bale of 350 lbs. and Rs. 2-6 for a bale of 400 lbs. of jute-cuttings, and Re. 1-12 for that of 350 lbs. Jute-cuttings cannot be pressed by screws plied with hand power.

The preparation of the ground for jute is made in March. After a shower of rain, the seeds are sown broadcast, at the end of that month; when the plants have attained a height of about a foot, they are allowed greater space for growth by the removal of the ill-grown plants. In June and July, the reaping of the harvest commences. The deora jute is cut in May. Jute for export is

not as a rule adulterated, but the growers generally bring to market the desi and deora jute in a wet state in order to increase the weight of the drums.

There is a kind of insect which attacks the jute plants, cuts off their tops, and eats up their leaves, and when this is the case, the crop is a certain failure.

No. 8.—MR. M. DAVID of Dacca,—Calcutta, 6th March 1873.

Cultivation of te has largely increased, probably at least doubled in the eastern districts, during the past three years in consequence of the

high price paid.

Most jute and the best is grown in Rungpore and Mymensing. As soon as rain falls in March or April, land is ploughed once, twice, or three times, after which seed is sown broadcast. The crop is cut in June or July, i.e., reaping commences in June and continues till September, but the time of reaping it depends on the state of the market. High prices induce too early cutting which causes inferior fibre. The cost of production is about Rs. 1-8 to 1-12 per maund in the Mymensing district.

The native idea is that each beegah will yield, say, five maunds, supposing the plants to be five hands high, and one maund extra to each hand higher that the plant may be. The best soil is loam, clay and sand. The present system of cultivation is certainly deteriorating the quality of the jute, as the land is exhausted by continuous crops of the fibre. Chur land does not produce the best jute. High lands produce the best, and hilly lands the very finest. See for example Kankripara and such like places. Cultivators sow jute anywhere. Last year they even cleared away bamboo jungle to sow jute! and jute has been grown to the exclusion of rice, &c., to too great an extent. Jute will grow on land that is used for amun paddy. There is no regular rotation of crops, but kulai is generally sown after jute. Many fibres grow with jute, and are sold as jute. I know of five, namely, mettee, mesta, mechut, rajuat, dhenros.

Excessive rain and floods make it grow very rapidly, so much so that I have seen it 15 feet high in three months; this does not injure the strength of fibre, but makes it throw out many lateral branches at the top. A dry season does not allow the plants to thrive. The best weather is good early showers and sunshine to give them a good start, and fair amount of rain afterwards. Floods hurt just if they are high enough to submerge the plants for a length of time, as they then throw out roots from the stalks which cause

the fibre to be specky.

I know of jute cultivation since 1852 when I came to the country. It is considered the most lucrative on the average; it has enriched the population and raised the price of labor. The necessary cereals are still cultivated, though not to such an extent as before. Jute certainly impoverishes the soil. It is seldom manured, sometimes by weeds from the jheels. Jute is

prepared thus; It should be cut when it blossome, then steeped in stagnant weedy water for about seven or eight days: the more decomposed matter in the water, the quicker it will rot the jute, and if the fibre is washed afterwards in clean running water, the jute is much improved. An experiment might be made in rotting jute in vats in clean water. The tops do not need so much rotting as the bottom. If length is not looked to, the jute might be cut in two to advan-

Jute passes from the growers to the beparies who either buy on their own account or on

commission.

Last year, 1871-72, Naraingunge exported six or seven lakhs of maunds, and this year, 1872-73, ten to eleven lakhs, excluding direct shipment. Jute is cultivated generally by the ryots who grow cereals, &c., &c.

Jute is known as nullya, dhalsunder (white

jute), and bidyasunder (red jute), also pát.

I consider deora jute to be bad and inferior, because it grows on marshy soil and there is no good water to wash it in. It is the same plant that is cultivated in Serajgunge.

Deora jute is not cut, but torn up by hand. Mettee is quite distinct from jute in leaf, flowers

and all; its seed is black.

Mesta resembles the jute plant but its fibre is

Mechut is an inferior quality of jute, the seed is different. Rajuat is a wild growing fibre totally different from jute. Dhenros, distinct from the edible plant Lady's finger, is chiefly made into paper.

No. 4.—Baboo Modoo Sudun Mitter,—Calcutta, 11th March 1873.

I have been in the jute business in Calcutta for the last 30 years.

Kankripara, Sholemari, Chilmari, Bhotemari, Bagooah and Kansharir Chur are the villages in which the best jute, termed uttariya pat, is grown. The jute called deswal grows in places not far off from Serajgunge. Jute of somewhat inferior quality comes from Naraingunge. There is another quality of jute which comes from Doolalgunge, another from Sholedanga, another from Jharbori. Deora pát comes from zillah Furreedpore, Gopalgunge, and Madaripore. The desi pdt comes from Jessore, Hooghly, Culna, and 24-Pergunnahs. Uttariya or the best jute is of a white color with a golden tinge, glossy fibre, and up to fourteen feet in length. The deora is the worst kind of fibre, and I do not think it is jute proper. There is a sort of fibre called mesta. It is grown in Furreedpore, Madaripore, and Gopalgunge. There is another kind of fibre called mettee. It comes to Calcutta in very small quantities along with gunny cloth from Doolalgunge, Sholdanga, &c. The mesta plant does not resemble jute plant nor does the mettee. Mesta is exported separately, but not as jute. I do not know what is rajuat. The cultivation of jute is being rapidly extended. The quality of jute is

not on the whole deteriorating, and we continue to see some very fine jute in the market annually, but the supply of the staple has been large, and a large quantity of good as well as bad jute is to be found in it. Gunny is made mostly of Doolalgunge, Sholedanga, and Ryegunge jute. The deswal jute comes to market first and is brought to Calcutta so early as Ashadha (June and July), uttariya follows. The deora comes to the market about this time. The price of uttariya jute this year has been Rs. 3-8 to 3-12 pemmaund. Last year it sold from Rs. 4-8 to 4-12 per maund. The price of deswal this year is Rs. 1-6 to 2-8. Last year it sold at a rupee higher than this season's price. The value of Naraingunge pat has been this year from Rs. 2-12 to 3-4. Last year the value was Rs. 8-8 to 3-12 and 4-4. Desi is sold at Rs. 2-9 to 2-13. It fetched a rupee higher last year. The present price of deora is Re. 1-12 to 1-14 and 1-15. Last year's price was Rs. 2-4 to 2-12. Doolalgunge jute just commenced to arrive at Calcutta. Last year it sold at Rs. 4 and 4-8 the maund. The native name of jute is pat in about Calcutta. It is called kosta towards Seraj-The cause of this reduction in the price of jute in the present season is due to the supply being more than the demand in Europe. The desi or country jute is now and then found in a moist state. With the exception of this no adulteration is resorted to in the trade of jute.

No. 5.—SREEHURRY SHAHA,—Calcutta, 12th March 1873.

I have been engaged in the jute business nearly Jute is known by two names, viz., pat and kosta. There is another kind of fibre, called mesta pat. Mettee pat is not known to me and I have never heard it mentioned by traders, nor do they know what rajuat is. I am, however, aware that there is a place called Methegunge, and a kind of sunn grows there. Jute is extensively cultivated in the districts of Rungpore, Mymensing, Cooch Behar, and Dacca. A pretty large quantity of it is also grown in the district of Rajshahye, and now-a-days it is cultivated more or less in almost all the districts of Bengal. Jute is known under different names in commerce. The best kind is called uttariya. The next best is called deswal, the next in quality is what we call Dacca Naraingunge pat; desi jute comes next. Next in quality is the Janiporey or Pubna pdt. Lastly comes the deora jute. Uttariya jute comes mostly from Serajgunge, and is grown at Kansharir chur, Kankripara, Mankerchur, Bagarchur, Chuckarchur, Bullorampore, Behar, Doorgapore, Patamari, Bhotemari, Kankina, Kalligunge, Bagooah, Kamarjani, Sholemari, Chilmari, and Backsirhat. Deswal also comes from Serajgunge and is grown in the villages of Pingna, Shoya, Shealkole, Ryegunge, Joomarbari, Bollah, Nagaghureah, Pakooleah, Jamoorki, Babuapata, The Dacca Naraingunge pdt comes from Naraingunge and grows at Kalligunge, Araleah, Lackpore, Beeralia, Kureemgunge, Backrabad, Bhateal, &c. Shumboogunge, in Mymensing, is a small jute mart and sends jute direct to Calcutta. Bidyabaty, Serampore, 24-Pergunnahs, and other places near Calcutta grow desi pât. This year the cultivation of desi jute has been very large, and I may say unprecedented. Deora pât grows at Shodepore, Gopalgunge, Madaripore, &c. Backrabad and Amirabadia jute has been mentioned under the head of Dacca Naraingunge jute. There is another kind of jute inferior to the deswal. It comes from Maldah, Doolalgunge, Ghora Ghat, Debeegunge and Sholedanga.

The uttariya and deswal are in greater demand amongst the traders than any ther kind of pdt. The gunny made at Burranuggur and Alipore is from Dacca, Kureemgunge, Janipore, and occasionally Doolalgunge jute. Gunny bags are received in large quantities from Sholedanga, Patchagorah, Debeegunge, Maldah, and Ghora Ghat. Deora in this country is mostly used for cordage. The jute in order to be good must be white, glossy, clean, of good strength, and long. Jute grows well on doas soil composed of clay and sand. Jute may grow on atalia (clayey) soil, but little or no jute grows on baley matee (sandy soil). The longest jute plant is seven or eight cubits in length. My opinion is that the cultivation of jute is gradually increasing, and this year it has increased fifty per cent. over that of last year. This has been at the cost of rice cultivation.

Last year the prices were as follows:-

			Rs.	A.		Rs.	A.	1 17 13 m
Uttariya		٠.	4,	0	to	6	4	per maund.
Deswal	• •		2	8	to	4	0	ditto.
Desi			3	0	to	3		ditto.
Deora		• •	2	0	to	3	0	ditto.
Dacca Na	raing	unge	⁻ 3	0	to	4	8	ditto.
Backraba	di ¯	• •	3	0	to	3	. 8	ditto.
Janiporey	• •	• •	2	12	to	3	4	ditto.

The present price is-

ıd.

This fall in the price is due to the supply here being greater than the demand in Europe. The quality of jute is year after year deteriorating, and the cultivators in their anxiety to bring to market a large quantity of jute do not pay attention to the careful preparation of the fibre. Cereals are generally grown on jute lands. The growth of jute for three successive years on a piece of land exhausts the soil. Jute is so far an exhausting crop. The dest pat has either a brownish or darkish color and is not so glossy as the Serajgunge jute. The preparation of the jute ground commences in February and March, and the seeds are sown broadcast in April and May. The reaping of the crop begins in August and September. Jute land is generally ploughed

three or four times, but as a rule it is not irrigated. Both sunshine and rain are necessary for the growth of the plant. The rent of jute land is Rs. 3 the beegah yearly; each beegah produces on an average 8 to 10 maunds of fibre, and the cost of cultivation and preparation of a maund of jute is from Re. 1 to Rs. 2, including rent. Jute comes to Calcutta by boats, steamers, and rail. The bulk is sent down by rail and steamer. Jute is not adulterated. Serajgunge is the largest jute mart. Kamarjani, Rungpore, Kankina, Shumbhoogunge, Naraingunge, Dutta Bazar, and Kaligunge are smaller marts. There has been a marked increase in the jute trade within the last 15 years or so. Mesta pdt grows in Jessore and Backergunge. It goes to Europe along with deora pát.

No. 6.—Mr. A. Constantine (of Soobunkolly),— Calcutta, 1st April 1873.

Ground is ploughed about thrice at different times in different localities; in February on the edges of the bheels, in May (Vaisakha), as soon as the rains commence, on moderately high land, and on the high lands when the rains have fully commenced. As soon as the plant is a foot high, the ground is carefully weeded by a species of hoe (nirani.)

The ground is not manured as a rule.

A packi is 75 hands square, or less than one-third of an acre.

A packi would probably yield four or five maunds.

The best soil for growing jute is clay and sand mixed with alumina deposit with sufficient natural moisture not to be affected by drought easily.

The quality of jute has deteriorated of late, because it is grown to such a large extent that the steeping process cannot be properly attended to. The deterioration is not owing to any selection of land. A certain and particular time is necessary for steeping, and if it is steeped too long the fibre loges color and rots.

I know of no rotation of crops. The leaf of the jute manures the land; jute land is used in the autumn for winter crops, seeds, and so forth.

Of other plants which may be confounded with or sold as jute, I know of "tosa" of two kinds, one red and the other white; meglai also two kinds, red and white; patlai has a red stem but a white fibre. Corch murdun, tolla and bomee, may be descriptions of jute (Corchorus). The mechut or mesta is sold separately for papermaking. It fetches a high price. I heard of it bought as high as Rs. 5 per maund this year.

In my district jute is known by the name of jat pat which means jute proper. Tosa is known

in Dacca by the name of meties.

The best jute is grown in the Churs. The further north, the better the jute, up as far as

Rungpore, or as far as I know.

At Rungpore the two banks of the river Dolna yield two kinds of jute, binepar and dinepar, the latter is very good, but the former yields a woody fibre.

Every village near my place cultivates jute.

The Tista, raw jute, is very strong in fibre, and has a reddish hue, which, it is said, is given by a plant which is put by the natives over the jute while soaking.

Excessive rain does not spoil jute, if it does not produce a flood large enough to entirely submerge

the crop.

Drought stunts and spoils the plant. Jute has been known about my place as an article of trade for the last twenty-five years. Its cultivation has increased greatly of late, having been double since last season.

This cultivation has increased the price of cattle, as the natives were so well off that they

kept the very best animals.

Last year in May I could not get men to work, as they were so well off. This year the price of jute having gone down, I can obtain plenty of workmen. I don't think the price of cereals has been affected by the extended jute cultivation.

Soil if manured in November is not, I think,

exhausted by jute.

The plants, when in blossom, are cut into bundles and kept on the ground for two days, as it is said the fibre separates more easily. If kept till the seed pods form, the jute gets woody, and is known as bichalli. It is soaked for different lengths of time according to the period when cut. The early cuttings take less time as they are soaked in red stagnant water, but as the rains increase, and the water in pools and tanks freshens, longer steeping is needed.

I can suggest no improvement on the present mode. In steeping, cowdung and mud are placed over the plants to make them rot better.

I do not find shallow water discolor the fibre.

Jute fibre, when ready to be separated, is taken off from the butt end near my place, while near Rungpore, in the north, the tips are cut and the woody stem shaken off from the top: this latter is the best way, as it goes with the grain and prevents the jute being towy.

The jute that grows in and about my place is taken to the Serajgunge mart for sale by the mahajuns, or their people buy it in the market, where the growers take them for sale during the monsoons. It is safer to send the jute to Calcutta by steamers as far as Goalundo, and thence by the rail, but in the winter season it can be safely sent in native boats. The charge of sending a maund of jute from Scrajgunge to Calcutta by steamer and rail during the monsoons is 14 annas to 1 rupee; at other seasons it is only eight annas. During the rains the charge of sending a maund to Calcutta by native boat is two annas less; at other times three annas a maund. The jute passes from the cultivator to the petty mahajun, called fureah, and from the latter to the mahajun who, as a rule, sells it at Serajgunge to the class of people called khoriddars or beparies. These men take the article to Calcutta.

In and about my part of the district every ryot who has a plot of law sows it with jute. In my

opinion jute is a safer crop than rice, which requires more weeding and more care than jute. The ryots do not grow under advances. Gunny is made of middling jute, which is neither very good nor very bad.

No. 7.—Baboo Nolit Mohun Dass,—Calcutta, 18th April, 1873.

I have been engaged in the jute trade at least

twenty-five years.

It is five years since the quality of jute has deteriorated. As cultivation increases, so the quality falls off; the reason is that the cultivators cannot bestow the required attention on large quantities. Besides this, good water is scarce and labor much dearer than before. Labor ten years ago was at the rate of eight laborers per rupee, now it is two to four for the rupe. The deterioration of jute both in color and in strength is owing to the scarcity of rain of late years about sowing time. People bring anything to the market for sale, and find a sale for it, hence they do not take the trouble to grow jute.

The best jute comes from the northern parts of Serajgunge. The best desi comes from Janai Baxar and also from Atcheepore. Best deora comes from Gopalgunge, Sodepore in Furreedpore, and also

Madaripore in Burrisaul.

No. 8.—Greesh Chunder Mookerjee of Woolfadanga),—Suburbs, 8th July 1873.

My employer, Baboo Radhanath Koondoo, has an agency house at Wooltadanga, on a bank of one of the eastern canals, and our business is to sell jute, linseed, mustard, &c., brought to our firm by the beparies, who principally come from Furreedpore. We deal only in deora jute, which is brought from Gopalgunge, Shodepore, Tona, and Madaripore. The last place is in the district of Backergunge. Last season we sold 28,000 maunds of deora jute at Re. 1-6 to Rs. 3; and in the season before about 33,000 maunds at Re. 1-12 to Rs. 3-8 the maund. The weight by which jute is sold in and about Calcutta is of 80 tolahs to the seer. We have to give a poah (onequarter of a seer) over and above the quantity to the seller by way of dholta (brokerage), and sometimes, when the fibre is a little wet, so much as two to five seers in the maund. There is a class of men called jachunders, who examine the jute on behalf of the buyers and fix the quantity to be given over and above a maund in case the fibre be found wet, receiving for remuneration 21 seers of jute for 100 maund sold from the seller or aratdars, and the same quantity from the buyer, besides three pice, or nine pies, for each cartload of fibre bought. We sell through brokers, called dallals, who are allowed by the seller and buyer separately one pice for every maund sold. The buyers sometimes remunerate the broker at the rate of a rupee for every 100 maunds purchased through him. The seller has also to pay the men who check the weighments. The beparies give the aratdars four pice for every maund of jute sold by the latter. Godown

hire is not charged for one month, but for periods more than a month. A godown that can hold 2,000 maunds of jute is let at Rs. 15 per month. The beparies who bring 200 maunds only will have to pay rateably for the days or months their jute lies in the godown unsold over and above a month. These godowns are either the property of the aratdars or leased by them, and they have to pay rent whether they keep jute in them or not. All deora jute is brought in country boats via the Sunderbuns. The expense for removing jute from the boat is six annas for every 100 maunds, and four annas for placing it on the scales at the time of sale. This expense is borne by the seller. If the godown be at some distance, the jute has to be carted away at the bepari's expense. There is no special rate for cart-hire, which depends upon the distance of the godown from the arat. Deora jute is mostly brought in drums, but a quantity of Gopalgunge fibre comes in hanks. We sell jute either in drums or hanks as they are received from the district. But fibre brought in a wet state is dried and tied up again. It costs three to four pice to make a drum of jute weighing ten maunds and five seers to one maund and twenty seers. Those bepaties who choose to receive the estimated value of their jute before it is actually sold, have to pay intérest at Rs. 12 per cent. per annum to the aratdars, who advance them little less than the market value of the day. If the fibre is sold for more, the surplus is sent to the seller; but if for less, the bepari is made to refund the difference. Those who wait till the sale is complete do not pay any interest. There is no fixed time for payment, which is generally made from three days to one month. Some of the merchants of Calcutta buy deora jute from us. New jute comes to the Calcutta market from the month of Sravana and Bhadra till the close of the year. About 10,000 maunds of deora jute lies in the godown unsold at Wooltadanga. Shodepore deora jute has considerably deteriorated, and people attribute this to the insufficiency of the rains. Gopalgunge, Madaripore, and Tona jute has neither deteriorated nor improved. do not buy mesta pat. The deora jute generally has a reddish tinge. Beparies are mahajuns who buy from the growers and fureaks, and sell through aratdars. Deora jute boats are not insured. Including all expenses it costs from Rs. 18 to 20 to bring 100 maunds of jute from Gopalgunge to Calcutta. We do not make any advances to the beparies. But when a bepari comes to my employer's arat with jute worth Rs. 200, we do not hesitate to advance him if he wants 500 rupees. He goes home and sends us other articles for sale. He pays us interest at the rate of 12 per cent. per annum.

The seller has also to pay to the coyal (weighman) eight annas for weighing 100 maunds of jute. He has also to give the aratdar 71 seers of fibre out of every 100 maunds sold on account of birti, that is for poojah, and for the weigh-man, who receives half the quantity. Carts only are used in removing jute. Our firm does not deal with itinerant beparies. We have khalgustees,

who go beyond the Dhappa toll-house, board boats consigned to our firm, and advance from the aratdars' funds the prescribed tolls which are subsequently repaid by the beparies bringing the boat or boats to our arat. Since last season we have also been receiving jute from Rungpore, Bhotemari, Chilakhal, Baoria, Abeeba, &c. This jute is brought down to Calcutta by rail and carted away from Sealdah to Wooltadanga, selling it at Rs. 2-4 to 3 per maund. Some 2,500 maunds of this fibre was sold at our arat last season.

The dealings in this jute are conducted on precisely similar terms as the deora jute.

No. 9.—RAPHANATH KOONDOO (of Wooltadanga), —Suburbs, 9th July 1873.

Our arat, which has been in existence for the last 12 years or more, is at Wooltadanga, by the side of the eastern canal, and we deal in jute, rice, mustard, linseed, &c., &c. We do not buy jute; but we sell it for mahajuns or beparies and for bhasa beparies (itinerant traders). We sold 60,000 maunds of jute in 1278 B.S., and about 50,000 maunds in 1279 B.S.

Serajgunge, Naraingunge, Dacca, Tipperah, and Mymensing jute, as also deora jute, are brought to our arat for sale. The commission or aratdari charged by us is one anna for each maund of jute sold. Those beparies who pay at this rate, dispose of their jute from the boats in which it is brought. Those who store their fibre in our godown pay at the rate of five pice per maund, including godown hire. The sellers also pay two annas for each 100 maunds to the weigh-man (this charge is called coyali), six annas to the coolies who remove the jute from the boats, three annas for placing it on the scales and for hire of carts for conveying it to the godown, and three pice for each cart for removing the drums from the carts to the godowns; this last charge is called jharani. Besides this the sellers have to pay one pice to the man who on the part of the purchaser notes down the weighments, and one pice brokerage per maund. The The broker appears on behalf of the purchaser. aratdar is in fact the seller's broker. Besides the above cash charges, the sellers have to give to the jachundars (men who on behalf of the purchasers examine the jute) 21 seers of fibre for each 100 maunds, one-quarter of a seer by way of dholta (brokerage) for each drum of jute, and 71 seers for every 100 maunds on account of chootki and birti. There are some purchasing firms who pay one rupee for every 100 maunds to these brokers, a few eight annas, some four annas, and others nothing at all.

As a rule, we have to advance money to the beparies. There is no particular time for making these advances; but a bepari would take Rs. 500 from us in one day, and, a month or two after, bring in their jute to our arats. In addition to the commission, we charge them interest at the rate of 1 per cent. per annum for the money advanced. They gradually discharge their debt by paying us a part of the value of the jute sold. It also happens that dishonest beparies, after

taking advances, sell their jute at other arats. In such cases we do not charge them more than one per cent. In case any portion of jute is found to be wet or rotten, the jachundars make a deduction from each drum, and the price is settled accordingly. The aratdars sell jute on their own responsibility, being accountable to the seller for the money. Soon after the sale the proceeds or a part of them are paid to the seller, who then returns to his country. Sometimes the beparies themselves, and at other times their agents, come with the cargo, and often they authorize us by letters to sell their jute and remit the money by draft, or send the value in consignment of salt. The beparies do not fix a price, but leave it to us to sell it to the best advantage. We sold jute last season at the following rates:-

DACCA DIVISION.

Per maund.

			Rs	. A.		Rs	Α.
Uttariya jute			2	0	to	3	12
Chowria		•••	1	12	to	3	8
Deswal		• • •	1	8	to	3	0
Kankripara		•••	3	0	to	4	1
Gouripore			3	0	to	4	0
Goberdhone	•••		3	0	to	4	0
Pata Kata			2	12	to	8	14
Pata Mari	•••		2	8	to	2	12
Bagooah	•••		3	0	to	3	11
Sholemari			2	12	to	3	8
Chilmari			2	12	to	3	8
Kamarjani	•••		2	0.	to	2	12
Boorir Chur	•••		2	12	to	3	8
Babnaparah		•••	*3	0 4	to	3	12
Jamoorki		•••	2	12	to	8	10
Pootey Jany	• • •		2	8	to	3	8
Bolla			3	0	tο	3	12
Shoya	•••		2	0	to	2	8
Sheal Cole			1	10	to	2	8
Elanga			2	Ü	to	2	12
Kansarir Chur	•••		3	0	to	3	14
Pathooria ·	•••		2	0	to	3	4
Shumboogung	e		2	8	to	3	4
Teribazar			3	0	to	3	8
Kaligunge			2	4	to	3	0
Lukhigunge			2	4	to	3	0
Hossenpoor			1	12	to	2	8
Dutterbazar			1	8	to	2	4
Bagconbari			1	8	to	2	0
Baropara			1	8	to	2	4
Kata Khoti		• • •	2	0	to	2	4
Borali			2	0	to	2	8
Shoari Kandi			2	0	to	2	8
Bhoyrub	•••		2	0	to	2	8
	•••		2	()			
Madhub Dihi			2	0	to	2	2
Shumbhoopore	***		2	U			
Nandeal	•••		2	. 0	to	2	12
Naraingunge	•••		2	4	to	2	8
Modungunge			2	4	to	2	8
Kolagatehea	,		2	4	to	2	.8
Kykertak .	•••		2	0	to	2	6
Bydeah Bazar			2	0	to	2	4
Baroparah	*** .	•••	2	0	to	2	4

			Per	ma	und	l	
		R	s. A		R	s. A.	
Noyabhangani		2	0	to	2	4	Selanpore
Araleah		2	8	to	8	- 0	Madaripore
Poobali		2	8	to	3	0	Bhangah
Bormi	• • • • •	2	8	to	2	12	Rajooi Gopa
Kotiadihi		2 2	0	to	2	. 8 12	Gopalgunge Tona
Kureemgunge Bakrabad		2	0	to to	2	12	Puruliah
Bhowal		2	Ŏ	to	. 3	õ	Sodepore
Shampore	•••	3	0	to	4	Ö	Joynuggur
Gheore		3	0	to	3	12	Rajpat
Manickgunge		2	8	to,	3	0,	Jungipore
Jafurgunge	•••	2	0	to	2	15	Deora Kassimpore
Jhitka Terasri	•••	2 2	0 8	to to	"2 3	8	Kassimpore
remart	***	~	0	W	v	70	A larger qua
Distric	TIPP	erī	н.			•	boats than in
· .		_	^		•		jute is import
Shoral	•••	2	0	to	2	8	Naraingunge a
Lolgunge		2 2	0 0	to to	2 2	8 4	bringing jute
Mirja Chur Chowrapara	•••	2	0	to	2	6	steamers and
Aga Nagore		2	ő	to	2	6	100 maunds of
Sremuddi	•••	2	0	to	2	5	by the Eastern
Sonarampore	•••	2	0	to	2	6	and by railway
Radhanagore	•••	2	0	to	2	5	rates being
Digholdi	•••	2	0	to	2	5	season. In the
Rajshau	YE DIV	71810	ON.				month of Dec
Booritalah		3	0	to	3	8	same quantity
Toolsigongah	•••	3	ŏ	to	3	8	brought in boa
Phooltollah	•••	3	0	to	3	8	The Kankri
Booridh# .#	•••	2	12	to	3	4	Calcutta marke
Pubna	•••	2	8	to	3	0	strong, and fre
Muthoora		2	0	to	3	0	Doss used to the Teri Bazar
Kalikabari	•••	2 2	0 8	to to	2 3	12 4	the Babnapara
Tarapooriah Berah	•••	2	8	to	8	Ū	The Burranage
Shajadpore		2	8	to	3	ŏ	dium quality.
Dinagepore	•••	2	O	to		12	money to the
Bhooshee Khansama	•••	2	0	to		12	4 annas to 1 u
Nowgya	•••	2	0	to		12	
Jeagunge	•••	2	0	to	2	12	No. 10.—M
Doolalgunge	•••	2	0	to	Z	4	B
Ru	NGPORE						I hold twent
Bhotmari		3	0	to	3	8	of which, nan
Chilaklal	•••	2	8	to	3	4	the last two ye
Betoobari	•••	2	8	to	3	4	which are gen
Tamboolpore	,	2	.8	to	3	4	plants have red
Bowriah	•••	2	8	to	8	4	I got last year
Abila	• • •	3	0			12	at Rs. 2-4 per
Kissoregunge	•••	2	0	to		0	of positiveness as a rule we
Ghoramarah Kankina	•••	2	0	to to	3	8	ourselves work
Kaligunge	***	3	0	to	3	8	price of my ju
Jessore, Backergu	GK, AN	d F	URR	REDI	POR	e.	loser. In the of my crops, for
Chandpore		1	4	to	1	12	paikars came to staple for the
Buzarkhola	3¥***	î	4	to		12	on dose land,
Auguriah		ī	4	to		12	Kartika. If r
	* *					-	

		. 17	Rs.	A.		Rs	. A.	
Selanpore	•••	499	1	8	to	1	11	
Madaripore			1	0	to	. 1	8	
Bhangah	• • •	,	1	0	to	1	8	
Rajooi Gopal	gunge	•••	1	0	to	1	7	
Jopalgunge	•••		1	4	to	2	0	
l'ona-	• • • •	•••	1	4	to	2	0	
Puruli a h	•••		1	4	to	2	0	
odepo re	•••	•••	1	4	to	1	14	
oynuggur	***	•••	1	4	to	1	14	

Per maund.

8 to 2 0

0

1 0 to 1

8

er quantity of jute is brought in country n in steamers and by rail. All the deora mported in country boats. Jute from inge and Serajgunge is sometimes brought ers and by the railway. The cost of jute is less in country boats than in and by rail. The cost of conveying nds of jute from Naraingunge to Sealdah istern Bengal Railway Company's steamer ailway is from 41 annas to 12 annas, the ing raised and reduced according to In the months of August, September, ober the freight is high. From the December the rate is gradually lowered. from 3 annas to 7 annas to bring the antity of jute in country boats. Jute is n boats of 50 to 3,000 maunds burden.

The Kankripara jute is valued the most in the Calcutta market. The fibre is of fine color, glossy, strong, and free from bark. Baboo Nolit Mohun Doss used to buy the best jute. Next to it is the Teri Bazar Shumbhoogunge jute. Last season the Babnaparah and Gheore jute was very good. The Burranagore jute factory people buy jute of medium quality. We do not deal in desi jute; we remit money to the beparies in hoondies, and we charge 4 annas to 1 upee hoondean for every 100 rupees.

No. 10.—MADHUB SHANTRA (of Balindar), Burdwan, 5th April 1873.

twenty beegahs of land, a small portion , namely fifteen cottahs, is alloted to ave commenced the jute cultivation for wo years. I grow desi jute, the leaves of e generally green. One or two of the ve red stalks and red veins in the leaves. t year five maunds of jute which I sold 1 per maund. I cannot with any degree eness say what has been my profit, bat we do not employ hired laborers, we work in the field; hence even the low my jute last year did not make me a the year before, I made a good thing ps, for I got Rs. 5 for each maund. The me to our houses and bought up the the Calcutta market. We grow jute land, which is grown with potatoe in If rain falls in February the tillage

commences, and the jute seeds are sown in Vaisakha after a shower of rain.

The cost of cultivation is as follows:---

				Rs.	A.	P.
Four times ploughing	}	***	•••	1	0	0
Two and half seer se	eds	***		0 (5	0
Manure (cowdung)	***			0 10	0	0
Twice harrowing	•••	•••		0 1	8	0
Twice weeding	•••	•••	•••	2 ()	0
Cutting	•••	•••	•••	1 ()	0
Separating the fibre		•••	•••	2 (3	0
Rent	•••	•••	•••	2 (3	0
		Total	•••	10 1	<u> </u>	0

The ground is well manured for the potatoe crop with oil-cake, so that cowdung suffices for jute. Jute is an exhausting crop; we do not therefore grow jute for two or three years continually on the same plot of land. Almost every other year aus takes the place of jute. Late paddy does not grow on jute or aus land. I also grow kulai on jute lands. It takes the place of potatoe. The steady increase in the demand for jute and the high price it fetches induced me and my neighbours to grow it. I do not grow jute under advances; I do borrow money from the mahajuns for growing jute and other crops, but my creditor does not take jute. Last season's price was discouraging. All the jute that was grown in our village last season has been sold. I have prepared a beegah of land for jute, and am only waiting for the rains. In Sravana and Bhadra I cut the jute-plant when in flower, for it rots sooner than the plant in seed, and the fibre it yields is finer. We keep some plants for the seeds. After cutting, the stalks are kept in the field for two days; this is done to secure quick rotting. The steeping is done for fifteen days. The seed-pods take twenty days to rot. I know that the fibre gets discolored if washed in dirty water, but I am helpless. I cannot afford to take it to a distant place for good water; I wash the fibre in the pool where the plants are steeped. I produce sample of jute grown by me. I break the stalks, a little above the lower end ere separating the fibre.

No. 11.—JARBEP HALDAR (of Ekluckhi),— Hooghly, 7th April 1873.

My holding consists of 40 beegahs, out of which I cultivated 20 beegahs last season with jute. This coming season I shall not cultivate more than 10 or 12 beegahs. I still hold about 71 maunds unsold. I have been offered Rs. 2 to 2-4; I am expecting Rs. 3. In my neighbourhood all who could afford to hold on, have done so. I should say that of the last season's crop 10 annas still remain unsold. I will wait another year to get a better price. I shall not mix the old with the new crop. The cost of production is—

					Rs.	A.	Ρ.
Rent				• • •	4	0	0
Six ploug	hing	and	harrowi	ngs	2	0	0
Mowing					3	0	0.
Weeding					3.	0	0
*Cutting	***		•••	•••	. 1	0	0
Steening					1	Ó	0
Steeping Separation of fibre			•••		1	Ö	0
•			Total		15	0	0

The outturn per beegah is three to six maunds. My total outturn from 20 beegahs last year was 66 maunds. The above estimate of cost of production, it must be borne in mind, is approximate, as the labor is my own and not paid for. I sow the seed in the latter end of Vaisakha if rain falls. If rain falls now (April), I can't sow as the growth would be checked. I also sow in Jyaistha. I cut the plant when the flowers appear. I only keep some plants for seed. I use the sticks as fuel for manufacturing molasses, and in my own kitchen. Plants cut when in flower yield a finer fibre than those cut when the seed-pods appear: but the outturn is not so heavy. If left till the seeds ripen, the fibre is rough. This is only done by those who cannot pay for labor. I cut my jute when plants are flowering instead of waiting for the best time, just as the seed-pods appear, because by so doing I have time to sow my paddy (a peculiar coarse paddy called kalangi or black paddy). This I sow on the land from which I had cut jute. On the jute land from which I cut jute later, i. e., after the appearance of seed-pods, I sow pulses. I take seed from the best plants. After cutting the plant I stack it for three nights to rid it of leaves, otherwise they would be very heavy, and the leaves would stick to the plant and hinder the rotting of the fibrous parts of the plant. If soaked at once it produces a better fibre. It makes no difference in weight whenever soaked. Plants cut when in flower take 11 to 12 days steeping; those cut when in seed take 18 to 20 days. I steep the plants in clean water. If the water is dirty, the fibre will be dark; if steeped in a large sheet of clean water the fibre will be white. I know of the following three kinds of jute: tceta, desi, and Luckhipore. Their differences are-the lastnamed plant has few seed pods and few branches; the desi is short, with many lateral branches; teeta is short and reddish, and its seeds globular. The Luckhipore seed-pods are long. I use cowdung, fresh earth, and oil-cake for manure; the last-named only for very inferior kinds of land. Last year I purchased about eight maunds of oil-cake for five beegahs of bad land. The best soil for jute growing is attial (clay) soil, and next to it doas, i. e., clay and sand mixed.

I have known jute cultivation, all my life. It has increased greatly during the last 20 years. Beparies or mahajuns come to my house, and take the produce of my fields away on pack-bullocks or earts to Calcutta. The cost of transit from my place to Bally is about one anna per maund. I take no advances for growing jute, but sometimes I borrow from the mahajuns, who at times take the jute grown in liquidation of the debt at a somewhat less than the current market price. The interest on loans for the cultivation of rice and jute is two pice per rupee; the latter pays best, and is attended with less risk.

In steeping, the top or thin part of the plant is kept so as to be on the surface of the water, but the bottom or thick part is put under water; but after seven days the whole is submerged. The people in our village have this year sown about 30 beegahs with jute; last year they had a cultivation of no less than 200 beegahs.

No. 12.—GOPAUL CHUNDER MANDAL (of Khurial), —Hooghly, 7th April 1873.

I have an agricultural tenure of 50 beegahs, out of which I grow jute on six beegahs. In these 50 beegahs there are low lands which are unsuitable to the growth of jute. I grow only Luckhipore jute. I know of another kind of jute called desi, but it grows short and throws out lateral branches. There is another kind of jute called mesta pat, of which we have a limited culti-The leaves of the desi and Luckhipore vation. pat are green, but those of the nalita are reddish. If there is a seasonable fall of rain in Vaisakha, I intend sowing jute on five or six beegahs; but if the rains fall later, I think I shall limit the cultivation to two beegahs. The last season's outturn was 20 maunds, which I have not sold. On the contrary, I have bought some for the purpose of selling to advantage; but the price has gone down, and in expectation of a better market I have kept the jute. I sold jute last year at Rs. 3-12 per maund. This year in the early part I had an offer of Rs. 3 per maund, but I did not sell it at that price. At the present moment the price of jute is Rs. 2-8 to 2-12. In our part of the zillah well-to-do agriculturists and substantial people have not sold their stock, but the poor people have done so. One-fourth of the jute grown in our village has not been sold owing to low price. The cost of cultivation per beegah is as follows:-

					$\mathbf{R}\mathbf{s}$.	A.	P.	
Five plough	•••	***	•••	1	8	0		
Weeding			•••		1	8	0	
Cutting	•••	•••	•••		1	0	0	
Steeping	•••		•••		1	0	0	
Separating			•••	•••	1	12	0	
Rent	•••	•••		•••	3	0	0	
			Total		9	12	0	

I do not put manure on all my lands, but I do on poor soil. On some plots I put in fresh earth, on others I throw cowdung, and on very poor soil I put in oil-cake. Each beegah costs me Rs. 2 to 3 on account of manuring. Does land, i.e., soil mixed with clay and sand, is favorable to the growth of jute. Attial mati and sandy soil do not favor the growth of jute. The land for jute is tilled from Falguna, and the seeds are sown in Vaisakha after a shower of rain. When the plants are about three inches high, we weed the ground; when the plants grow up a little more, we pluck out a few ill-grown plants. At the latter end of Bhadra, when the jute is in flower, we commence cutting. We keep the plants in the field for three or four days for the purpose of getting rid of the leaves. Unless the leaves are got rid of we find it difficult to remove the stalks to the pools, and if they are steeped with the leaves on, the fibre

gets discolored. The steeping goes on from 14 to 20 days in cold water, or rather in pools not exposed to sunshine. The jute does not rot soon. I wash the fibre in the water in which I steep the stalks. The jute is then dried for four days but not continuously. After a day's exposure, the fibres are kept in the shade for two or three days and then again dried, and this process is repeated. The fureahs purchase jute at our houses and sell it to the Calcutta mahajuns and to the owners of mills. As a rule, jute is not grown under advances, but there are a few ryots who receive advances to grow jute, which they sell to the party advancing at a price settled at the time the advances are made.

In certain instances the party advancing money charges interest at the rate of two pice per rupee, and takes besides a seer of jute for every maund contracted for. Contracts are sometimes verbal and at other times written. The purer the water the finer the color of jute. The more stagnant the water, the sooner the separation of the fibre takes place. Stream water will not do. On some land I sow after the removal of jute, kalandi, Sylhet, and Shabang dhan. On others I sow kulai in Kartika. After the reaping of the paddy some make an attempt at getting a crop of teora kulai, but the yield is poor. Pdt is more profitable to the grower than early rice, if it is sold at Rs. 3-8 to 3-12 a maund. Aus paddy is cut about the time the jute crop is reaped; perhaps a few days earlier. Jute is not deteriorating, as a rule, but growers who cannot manage to cut the plants in time, generally get inferior jute. On about 150 beegahs of land in our village pst is grown. The cultivation has within the last ten years increased two or even threefold. I am not aware of any wild pat being grown in my village. The people of our village used to prepare gunny-cloth three years ago, but they do not do so now. There are villages in our neighbourhood where gunny cloth is manufactured; it is made of desi as well as Luckipore jute.

No. 13.—Kaloo Sheik (of Atthi),—Hooghly, 15th April 1873.

My native village lies on the extreme west of the Hooghly district, and borders upon the district of Burdwan. Our village grows jute from the last year. I have sown jute only once, i. e., in the last season, when I cultivated sixteen cottahs of lands with it. It had never before been grown in our part of the district. As jute found a ready market, sold well, and could be safely grown on potatoe lands, we took to its cultivation. We got some jute seeds from the Krishnaghur district. They call it desi pat. We sowed the seeds at the latter part of Vaisakha, and cut the plants in the month of Bhadra, when they had commenced The season was unfavorable to the to seed. growth of jute, in as much as the rain was not plentiful. I did not, however, manure the jute lands. I got four maunds of fibre valued at the market rate of Rs. 6-8. I had previously grown

potatoe on the same land. It cost me for growing the crop as follows:—

-		•	Rs.	A.	P.	
Seeds		•••	0	2	0	
Thrice ploughing	•••	,,,	1	0	0	
Twice harrowing	***	•••	0	8	0	
Once weeding		• •••	1	4	0	
Cutting	•••	•••	0	12	0	
Separating fibre	***	•••	0	15	()	
Rent of sixteen co	ottabs	.***	2	4	0	
	Total		6	13	0	

My expectations were not fulfilled, and I suffered some loss. Being alone I had to employ hired labor. I grow jute on doas soona land. kept 900 sheep upon it for three days, giving the owners Re. 1-14 for keeping them. The land was well manured by the sheep, and I grew potatoe on it. Jute then followed, and I did not put any fresh manure. A local dealer bought the fibre from me and sold it in the Mugra market to the paikars. I am going to grow jute on one and a half beegah of land in expectation of a market better than last year's. In order to get rid of the leaves, I exposed the stalks in the field for two days, and then steeped them for twenty days in a pond belonging to another person, to whom I had to pay four annas. All the fish that was in that pond died, and the water got spoiled. Water full of decomposed vegetable matter rots the fibre more quickly than fine water. Fool pat yields the finest fibre. We used the reeds in cooking our food. I washed the fibre in the pond where I had steeped it. Last year there was not sufficient rainfall. Jute is more profitable than aus rice. I produce a sample of the jute prepared by me.

No. 14.—GOPAUL CHUNDER DASS (of Madarpur),— 24-Pergunnahs, 22nd March 1873

Out of my holding of 16 beegahs I cultivate about three beegahs of land with jute. This year if there is a seasonable fall of rain in Vaisakha, I shall continue to cultivate three beegahs, partly on the same land and partly on fresh land. I manure with cowdung. I obtain from a beegah of land, in a favorable season, six to seven maunds. I obtained during the first season Rs. 2-8 to 3. I got last year Rs. 4 to 5. Unless I get Rs. 3-12 to 4 per maund, jute does not pay me.

The cost of cultivating jute is Rs. 9 per beegah, including reaping of the pulse crops I sow previous to the jute. I know of three kinds of jute which were cultivated in my district ten years ago, mesta, teeta, and desee, but it was found that their fibre was coarse and yield short. They have given way to the Luckhipore jute. This is now called desee in Calcutta. I do not know where it came from.

The paikars come to the houses of the growers, buy the fibre, and then cart it to the temporary depots where they dispose of it to the makajuns who take it to Calcutta for sale.

I am now preparing the ground. I plough it at least five times, perhaps oftener. I sow the

seed broadcast in the month of Vaisakha after the first shower. When the plants are a foot high, I harrow the ground to thin the crop. I then hand-weed the ground twice. About the 15th Bhadra the plant flowers, and cutting is commenced. All about my district it is cut when in flower, better fibre is then obtained. Labor is then dearer. After cutting, I stack the plant to rid it of leaves, which, if not got rid of, add to the weight and make the plants sink in water. I then divide the plants into two classes, long and short. I then tie the plants in bundles of a sufficient weight to be carried by one man each. I then steep them for 10 to 12 days, if the water is stagnant, but if not stagnant, for 17 to 20 days.

There should not be more than three to four inches of water over the plants. I do not need to turn the plants, as I place clods of earth on them to keep them entirely submerged.

The dirty water (i. e., stagnant water) affects the color of the fibre, but it has an advantage over clear water, in as much as it prepares the fibre quicker.

It would be an advantage to wash the jute in clear water after soaking, but it is not done.

Jute cut late, i.e., after flowering, produces a reddish-colored fibre. Too much steeping weakens the fibre, and makes it of a dark dirty color. The jute of Nyehattee is better than that of Baraset; it is clearer, and more attention is paid to it in the former place.

In my part of the country, last season's high price caused the cultivation to be doubled. I do not think as much will be grown this coming season. I think that the fibre is better now than it was ten years ago; before that time it was only grown in small quantities for home consumption and not for export.

Four seers of seed suffice for a beegah. The dried reed is sold for fuel to those who make molasses.

After preparing the fibre, it is dried for two

About four-annas of the last crop still remain in Nyehattee in the mahajun's hands generally.

No. 15.—KADER MANDAL (of Baraset),—24.Pergunnahs, 22nd March 1873.

I am a grower of jute. I grew jute on two beegahs of land and sold it at Rs. 2-8 a maund this season. In the season previous, I sold the fibre at Rs. 3-8 to 4 a maund. If rain falls in the month of Vaisakha next, i.e., a month hence, I intend cultivating jute as last year. I grow the Luckhipore bagi pat. Some years ago, I used to grow teeta pat, but I had to give it up for want of seed. I was also in the belief that the jute mills in and about Calcutta would not like that jute. The teeta pat has the best color, but is not so long as the Luckhipore. There are two kinds of teeta pat, one is called the dholi, the leaves of which are green, but smaller than those of Luckhipore, being of a globular make, the other kind has leaves with red veins. We all

here grow the Luckhipore pat. There is another kind of jute called the mechut. I used to cultivate it in days gone by; but gave it up in favor of the Luckhipore jute. The preparation of jute land commences in the month of Kartika, and it is ploughed 10 or 12 times before the seeds are sown, which is done at the latter end of Vaisakha or the beginning of Jyaishtha. After that, it is almost useless to sow jute, for the season advances and the crop fails. Jute in many parts of the district grows on high lands, and in doas soil (mixture of sand and clay), where aus (early) rice grows. It does not grow on low land where the water accumulates. The cost of ploughing comes to about Rs. 3. After the seeds are sown, the land is harrowed once or twice. It land is, as a rule, weeded once, but if the season be a particularly rainy one, it is weeded once more for the removal of the grass. The cost of harrowing is included in that of ploughing, and the cost of weeding is Re. 1-8 the beegah. I pay a rupee for cutting, and Rs. 2 for steeping the stalks, separating the fibre, and washing it. The rent of a beegah of first class jute land, which must be the soona land, is generally Rc. 1-8 per annum. Jute is a crop exhausting to the soil. The cultivation of jute has gradually increased during the last 10 or 12 years. Last year the cultivation was larger than the previous year. The high price it fetched during the last season induced the agriculturists to extend their cultivation. My holding consists of 30 beegahs of arable land; jute has been a source of loss to me this season. In the month of Kartika, we sow mator, mosoor, kulai, or linseed In Magha we remove this upon jute lands. crop, and then jute follows. Unless the land is manured with cowdung and refuses of houses, and unless fresh earth is placed thereupon, jute will not grow well. It is more profitable to the growers to cut the jute plant in Bhadra and Aswina when it flowers than when it seeds. But one cannot do that always for want of labor, and it has to be kept on the ground till it seeds, when the fibre gets coarse, and consequently does not command a good price in the market. After the reaping, the jute plant is stacked in the field and exposed to sunshine and dew for three or four days by which time the eleaves drop off and the reeds become light enough to float, and to be exposed in water to the action of the sun. The stalks are then removed to a stagnant pool of water, where they are steeped for 12 to 25 days according to circumstances. Sometimes these bundles in the state of steeping are turned in the water. The flowers of jute of all varieties are of a yellow color and of one and the same size. One day's drying is quite enough for the fibre, and if we sell it at our houses, we do not tie it up in drums, but we do that if we take it to the dêpot. Sometimes ryots, when pressed for money, take a small quantity of jute to the nearest market. The greyish color in jute is produced by the plant being cut too late, or in other words, not being cut when in flower. The reddish color is obtained by the reeds not being properly steeped in water. Steeping too long spoils the fibre, which loses strength and color. The yield of fibre from plants grown on a beegah of land is from two to five maunds. Teo much rain spoils jute, for it gets red and throws up branches, and too much drought prevents its growing high enough. We prefer paddy to jute, we are so much accustomed to the former. We do not grow any other fibrous plant.

No. 16.—Nucoor Chunder Shamanto (of Meerhat),—24-Pergunnahs, 22nd March 1873.

I am an agriculturist and have a cultivation of 20 beegahs of land, on one and a half beegah of which I grow jute. I have been growing jute for the last 10 or 12 years. I grow like all my neighbours, Luckhipore pdt. Some 10 years ago there was desi pat, but now we grow nothing else but Luckhipore. The land is prepared in Kartika and kulai and mottor are sown in it. This crop is removed in Magha, and after a shower of rain the land is tilled about ten times until Vaisakha, when, after another shower the seed is sown broadcast, and after third shower, when the seeds have germinated, the harrow is passed in order to thin the plants. When they are about half a cubit high the grass is hand-weeded, a few days after there is another weeding, and the plants are then left to grow without any further care from the growers. In Bhadra, when the plants flower, the reaping is commenced. After reaping the plants are stacked in the field for three days to allow of the leaves falling off. They are then divided into three classes, viz., the tallest, those of middling height, and the shortest; they are then tied into bundles of such size as a man can carry, and are steeped in the water of the Soote Nuddee. Then we place plantain leaves upon the plants to protect them from sunshine. The roots are sunk into the water more than the tops so as to allow time for their perfect rotting. After ten or twelve days the tops are sunk deep as the lower ends. After 15 or 18 days' steeping the stalks are taken out, the lower ends are broken off to the extent of a foot and a half and shaken in the water, the fibres then separate. We dry the pdt for three days. We sell it at home. It is purchased by the paikars. This season the price I got was Rs. 2-4 to 2-12 a maund. Last season I got Rs. 4 to 5 a maund. The jute pre-pared by us has a fine white color. This is owing to the good water of the Soote river where we steep the plants and wash the fibre.

Jute plants ought to be cut ere the seeds appear, for, after that, the fibre gets coarser. The cost of cultivation of a beegah of land with jute, including soaking and drying, is Rs. 10. to 12. A beegah of rich soil yields four maunds of fibre. Rs. 4 per maund would ensure some profit. Pât is more profitable than rice. Until last year jute cultivation was on the increase, but this season's price has discouraged the growers. No other fibre is prepared in our locality. We only grow dhan and pât. The length of the jute grown by us is four or five cubits. We manure the jute land with cowdung and house-refuse. Shoapoka occasionally attacks and destroys jute plants. There is another kind of blight which is prejudicial to

the growth of jute. In the months of Ashadha and Srávana, when the plants are about breast high, the leaves get crumpled up and the growth of the plant is checked. I do not know what is mesta.

No. 17.— Bansi Sirdar (of Barripore),—24-Pergunnahs, 3rd April 1873.

I am the holder of an agricultural tenure consisting of 40 beegahs of land, of which 10 beegahs are soona or high lands, and the rest sali or low paddy land. Last year I cultivated four beegahs with desi meeta pat and the yield was 11 maunds of fibre, which I have not yet sold. The price this season has been so low that I have not thought it advisable to sell the produce. I was offered Rs. 2 a maund. If I get Rs. 3 a maund I can sell it. Rs. 2-8 a maund will not cover the expense of cultivation, which is Rs. 9 to 10 including rent, which is Rs. 1-8 the beegah. I am a ryot. The Korefa ryots or under-tenants pay Rs. 2-8 and 3 the beegah. The market being low, I do not intend to sow any jute this year for sale; I am thinking of growing early rice and chillies on the land which was last year devoted to jute. The cost of cultivating aus paddy is Rs. 5 the beegah, including rent. I place fresh earth upon the jute land as also manure it with cowdung. I do not buy either cowdung or earth. At the commencement of Falguna the kulai is removed from the jute land, and I plough it up five or six times for jute, and sow the seeds in the middle of Vaisakha after a shower of rain. Pat requires more looking after and care than rice, Jute if sold at even Rs. 3-8 a maund is profitable, and more profitable than rice. Jute is known in our part of the district by the term pat. There are four sorts of jute, viz., (1) desi, (2) teeta, (3) meeta, and (4) bungital. Bungital grows on low land, also mesta. Teeta, meeta, and desi, grow on high land. The fibre of teeta pat is whiter and finer, but it does not come up to the meeta in length. I am 45 years old, and I have all my life seen jute grown. The cultivation, however, has increased during the last five or six years. Each beegah yields three to three and half maunds fibre in favorable seasons. The plants of teeta pat are reddish; those of meeta are green. The leaves of the former are somewhat circular with red veins, those of the latter are green and long. The seed-pods of the teeta jute are globular. Those of the meeta are elongated. The bungital pat plants and leaves are reddish. I cut the plants in Aswina when there are few or no leaves on them, and when there are seeds. I then cut the top in order to get rid of the small branches, and to secure the easy separation of the fibre from the stalks. Even if I can secure assistance, I cannot steep the plants immediately, for unless I dry the stalks for a day or two, their weight in the raw state will make them sink in the water. 1 am prepared to prove this in the proper season. The beparies come to our houses and buy up the jute.

No. 18.—BHOLA NATH GHORAMI (of Cullianpore), —24-Pergunnahs, 3rd April 1873.

I am an agriculturist, and hold a tenure of ten beegahs of land of which I cultivated three beegahs with pdt last year. This year I intend to reduce the cultivation to two beegahs, owing to the low price of last year. The remainder of the holding is given partly to the cultivation of sunn and partly to that of paddy. The cost of cultivating a beegah with jute is as follows:—

,			Rs	. А.	P.
Six ploughs	•••		 1	8	0
Weeding		•••	 0	10	0
Cutting and steeping	ζ		 1	4	0
Separating the fibre			 0	12	0
Rent	•••	•••	 2	8	0
	. •	Total	 6	10	0

Generally, I with my family do the ploughing, weeding, cutting, &c. The average yield of a beegah is three maunds, and I sold last year at Rs. 3.8 to 4 the maund.

The cost of cultivating a beegah of land with sunn is as follows:—

						Rs.	Α.	P.
Seeds						0	12	0
Four plo	ughs					1	0	0
Cutting,		ng, and	separa	ting th	e fibre	2	8	0
Rent						2	8	0
				Total		6	12	0

The yield of a beegah is 1 to 11 maund of sunn, and the price of a maund is Rs. 4 to 6.

The cost of growing aus rice is-

					Ks. A.	Р,
Ten seers seed					0 3	0
Six ploughs					1 8	Ŏ
Weeding	•••	•••	•••	• • •	0 15 0 15	0
Reaping	•••	•••	•••	***	0 3	0
Threshing	•••	•••	•••	•••		
		,	C otal	•••	3 12	0

The yield of a beegan is 4 to 5 coorees, valued at Rs. 4 to 5. Besides the expense already spoken of, we have to pay rent to the zemindar at the rate of Rs. 2-8 the beegah. Besides the paddy, we get 8 pons of straw from each beegah, and the value of the straw is 12 to 14 annas. High matial land is favorable. There is no mixture of sand in the soil in our village. In the month of Kartika the land is tilled and kulai sown on it immediately after. In Magha following or in Falguna the kulai is reaped and harvested; we have to spend about Rs. 3 a beegah for the cultivation of musoor kulai. The yield is generally one and a half cooree, valued at Bs. 3-4. In Chaitra or Falguna after a shower of rain, the land is ploughed, and in Vaisakha after another shower, the seeds of jute are sown after ploughing twice or thrice and putting fresh earth on the land. When the plant grows up to five inches, the harrow is passed on. Generally jute land is weeded once, but in particularly rainy weather it requires another weeding. At the latter end of Aswina, the cutting of jute commences. Some people cut the jute earlier when the plant flowers; we cut the plants

when they have seeded. After cutting I allow the plant to remain scattered in the fields. This I do for want of leisure and hands. After three or four days, I tie the stalks into bundles and remove them to the nearest pool of water where they are steeped for 12 or 14 days, perhaps more; I steep the jute in clear water. After separating the leaves, the fibre is dried for four or five days. The paikars come to our house and buy the produce. I got Rs. 2 for the fibre I prepared this season. I get the seeds from the best plants in the centre of the field. I have carried on jute cultivation from a long time. I grow desi pat only. There are two kinds of desi pat, one teeta (bitter), and one meeta (sweet). The seed-pods of the former are globular, those of the latter are elongated. The sweet pat is longer than the bitter jute. The leaves of teeta pat are smaller than those of meeta, and have red veins which are not seen in meeta pat leaves. The stem of the teeta jute is also red. There is a kind of jute called bungilal, it grows on low land, and is sown in April. The preparation of the fibre begins at the lower end of the plants where the fibre is stronger than that at the top. I know meeta pat; it grows in March. The leaves of meeta are roundish.

No. 19.— Nobokristo Ari, Shoobol Chunder Dass, Bholanath Ari, Mookam Mollan, Esabui Gazi, of Sunderbun Grant, Bhobanipore, —24 Pergunnahs, 27th August 1873.

We are cultivators and have been growing kosta for 4 or 5 years. We grow what we call nalita koshta; the seed-pods thereof are globular, and the leaves are bitter; the leaves are called nalita. Those plants, the leaves of which are sweet and the seed-pods elongated, are called bangi. We grow small quantities of jute more for home use. The surplus is sold in hats. We cannot say what the yield of a beegah is; we do not weigh the fibre. We grow jute on home-stead land. It does not grow on low-land. Low-land does not suit jute in as much as it is impregnated with salt; we manure the land destined for jute with cowdung. Jute would not thrive unless the land is manured. Those who have large quantities of high land, change the site almost annually; but as a rule such lands in the Sunderbun Grants are in very small quantities, consequently we manure the same plot of ground and raise the jute crop thereon from year to year. We grow sursoo on jute land in the winter. In January sursoo is removed, and we plough the land 4 or 5 times, and then sow the jute seeds after a shower of rain in Ashadha. About 2½ seers of jute seeds suffice for a beegah of land. We leave seeds upon the field. We do not buy them. We weed the jute field when the plants are half a cubit high. If the plants grow too closely, we pull up weak plants and thereby thin the field. We cut the jute in Bhadra and Aswina in fruits. The fibre then gives sufficient strength. If the jute is cut in flower, the color of the fibre becomes nice, but it becomes weak. After cutting, we stack the plants in the fields, and cover them with grass; this is done for 3 days for the purpose of getting rid of the leaves. The plants

are not kept standing on the ground. After 3 days we tie the same in bundles and steep the same in bheels and khals, and place upon them pieces of wood or clods of earth for sinking them below the surface of water. The putrifaction comes on in 10 to 12 days or sooner; the fibre is then shaken off in the water from the root. The fibre is then washed in the very water in which it has been steeped, and dried for 2 or 3 days, and tied This season's fibre has not yet up in hanks. appeared in market. Old jute is sold at 4 pice and 5 pice a seer. The furreals who buy our jute, pay Rs. 2-4 and 2-8 per maund. The furreahs take their purchase to Calcutta. This year the cultivation of kosta is less by nearly half. Last year's market was low, and the growers suffered loss, hence the reduction in cultivation this year. Last season, jute was sold at Rs. 1-12 and 2-4 the maund, and in the season previous, it fetched Rs. 2-12 to 3-8. In commerce, the jute grown here is called desi pat. We sell jute fibre in the Bhobanipore hat. The furreals also come to our houses and buy jute. We do not grow jute under advances. We have not got a separate rate for jute land. Where westeep jute, the water is not very saltish, but it is not drinkable. We do not grow sunn or mesta.

No. 20.—Derustoliah Sheik, Deras Sheik and Daem Moliah (of Mooregahtollah), Chand Moliah (of Nulmoory), Bodomally Moliah (of Ghotuck-pooker), and Jorip Moliah (of Nungulbanki),—24-Pergunnahs, 28th August 1873.

We have been cultivating jute from our boyhood. We grow bangi and amunia pat; the former is grown in larger quantities than the latter. The stalks and leaves of bangi are of light green color, and the seed-pods long; those of amunia of the same color, the seed-pods being roundish. New jute has not yet been prepared; jute plants are generally cut in flowers; the fibre of such plants is of a finer color than those cut in seeds; as a rule jute land is not manured with cow-dung, but generally fresh earth dug out of old ponds and ditches, is put upon it. If fresh earth is put in the way above described, the same pieces of land will grow jute from year to year as long as one likes, but unless fresh earth is put on the field, the second year's crop is poorer than that of the first, and annually new sites are selected for the growth of jute We grow jute on high doas and matial land; the yield of a beegah of land is not more than 3 or 4 maunds. Old jute is now selling at Rs. 2 and 2-2 the maund; jute is sold here by the seer of 80 tolahs. Sometimes jute is sold in the hais, and other times the furreaks come from Rajarhat near Dum-Dum, and other places to our houses and make the purchase. Sursoo and mussoori kulai are grown upon lands destined for jute in winter; these crops are taken off the field in Falguna; the land is then ploughed 10 or 12 times, and the seeds sown in Vaisakha and Jyaishtha; after a shower of rain when the plants are about half a cubit high, a weeding of the grass takes place; if the plants grow too thickly, we pull up some and cut the

plants in the latter part of Bhadra and in all Aswnia. Some steep the bundles at once, some keep them on the ground for 2 or 4 days in order to get rid of the leaves, when they are tied in bundles and steeped in tanks; after 10 to 15 days' steeping, we separate the fibre from the thick end by shaking the stems in the water. The increased cultivation of jute has been going on from the last 5 or 7 years. Last year's cultivation was the largest and this season's cultivation is less by sixannas or more. Last year's price was not paying, hence the reduced cultivation this year. We work with our own ploughs, and work ourselves on the In Calcutta the jute sold by us is called field. We produce good jute. Last year we sold jute at Rs. 2, 2-4, and 1-2 the maund. In the year before last, jute fetched Rs. 3-8 and 3-12 the maund. Furreals take our jute to Wooltadangah, Rajarhat and Belgatchia. We take advances from the furreahs and grow jute. We contract to sell jute at the market price, and to give 5 seers over and in excess of a maund. We have to deliver jute within a certain time, and if we fail to fulfil our contracts, we pay within a given time 4 annas to the rupee by way of interest. We receive advances from the furreahs in the month of Bhadra; ryots who take advances cannot sell jute to others. The advance of last year was from Rs. 2 to 30 in each case. This year the advancing has not yet commenced. We tie up jute in hanks of 2½ seers each. It costs about Rs. 8 to raise jute crop on a beegah of land, including the expenses of the preparation of the fibre. . We do not grow mesta pát. Low-lands do not grow jute.

No. 21.—Mr. James Gordon (of Gouripore),—24-Pergunnahs, 16th October 1873.

I am Superintendent of the Gouripore Jute Mills. I have been in Bengal for the last ten years. In the years 1870, 1871 and 1872 I grew jute on account of the Gouripore Company both on chur and high lands, and the high land crop turned out to be much superior to that raised on the chur land in strength, length, and color of fibre. The outturn per beegah on the high land was 8 maunds in the first two years, and 7 maunds on the third year; that on the chur land was about 7 maunds regularly. The chur used to be flooded, annually, and I did not put any manure on it. The high land had been manured two years before with cow-dung for sugarcane crop. I cut the plants on high lands when they were in flower, and those on chur land when they were running to seed. The chur land jute was harsh and had long and hard roots. After cutting I laid the plants with tops and leaves in the field for about two days. In observing this process I had no object, but I simply followed the practice observed in this part of the country and in Scotland in case of flax. Afterwards I caused the stalks to be steeped in pools and excavations, i.e., stagnant water, and covered them with sods to keep them beneath the surface of the water. They were steeped for ten days, and then the fibre was separated by jerks in the water. The fibre was cleaned in the same water in which the stalks had been steeped and

dried for about three days. The fibre was then ready. I grew the long-podded jute. It was the whitestalked variety. I used the fibre in our own mills. The soil of the high land was sandy clay called in Bengalee doas. I did not think of steeping jute in the river water, as I was told that running water hardly rots the bark, and if it does, it takes a long time. In my opinion jute deteriorates, firstly, by being left standing too long in the field; secondly, for want of sufficient labor to manipulate jute after being cut; and thirdly, in dry years, such as last for instance, from want of sufficient water in which to steep the plant. Manuring greatly improves jute. Jute should not be grown on the same land for several years consecutively. It is an exhausting crop, and the land should be allowed to be fallow for a certain time. In seasons when there is a scarcity of water, people generally steep too many bundles in the same pool, a circumstance which leads to the loss of color. The expense of growing jute, and preparing a maund of fibre therefrom as incurred by me was Rs. 2-1-3 last year, when the price of jute was Rs. 2 to 3 per maund. The jute I prepared was fully worth Rs. 3 the maund. I paid Rs. 10 for a maund of seed which I got from the neighbouring cultivators. In these mills we use Serajgunge and Naraingunge jute, and in the winter a little of desi jute. I think that jute is not as a rule deteriorating in quality. I admit that a large portion of very inferior jute comes to the market, but that is owing to want of labor, insufficient water, and other local causes. Jute will thrive well in moist ground and in moist climate. The native name of jute grown here is Luckhipore pdt, and some call it amunia. This year's cultivation has been reduced in this part of the country by 25 per cent. if not more. My inquiries lead me to believe that the cultivators suffered a loss last year, and I do not think jute will pay unless sold at least at Rs. 3 per maund. We pay 15 pice to 4 annas for unskilled labor.

No. 22.—Alimamud Sheik (of Woojulerdanga),— Rungpore, 28th May 1873.

I am an under-tenant, holding under a middleman some 30 beegahs of land, for which I pay an annual rental of Rs. 50. Last year I grew jute on two beegahs, and I got 17 maunds of the dhola variety, which, with the exception of five seers I kept for home use, I have sold to beparies at 12 annas and 8 annas the maund. I sold in the months of Aswina and Kartika last. I do not grow jute under advances. I sold to beparies living in and about the place. I have been growing jute from a long time, but formerly I grew it for home consumption. Jute for sale has been grown for the last 30 or 35 years. Year before last I grew jute on a beegah and half, and I got ten or twelve maunds, which I sold at Rs. 2-12 to Rs. 3 per maund. The cultivation has been on the increase year by year. Owing to the high prices last year, there was extensive cultivation. This year I have grown on a beegah and half, but the drought has damaged all the young plants. This year, in this part of Rungpore, the

cultivation of jute has been six annas less than that of the last year. I grow jute on high land, which I have to manure with cow-dung. It is doas land, being an admixture of sand and clay. In this country two kinds of jute are grown. One kind and that which is largely grown is the dhola pat, and the other is the patlai or balatee pat. The dhola plant attains a height of six and seven cubits; the leaves are light green; the flowers small and yellow, and seed-pods globular; the seeds being of a reddish color. The patlai plants grow as high as dhola: the plants have a reddish hue, and their leaves red veins. Some of the plants of this variety of jute are also greenish The seed-pods of patlai are elongated, and the patlai seeds themselves have a dark green color. The jute grown here is called kamarjani jute, and is sent partly to Scrajgunge and partly to Calcutta. There are a class of men called paikars who also buy from us, and then sell to the beparies who ship to Calcutta or Serajgunge. We do not sell jute at any market; the paikars come to our houses and buy it. Jute is sent by country boats and steamers. Steamers touch at Kaligunge fortnightly; the river below Kaligunge is navigable throughout the year. We do not, as a rule, grow jute on the same soil consecutively for two years in as much as it weakens the soil a good deal. Generally aus paddy is rotated with jute. If no other land be available, we fall back upon the old jute land. If we can manage to cut jute in the month of Bhadra, then either mustard or kulai is grown upon jute land. But not if jute is reaped in Aswina, for in that case we have no time to prepare the land for these winter crops. The kulai is harvested in our country in the month of Kartika, and in Aughran following, the ploughing commences. It requires 10 or 12 ploughings to prepare a beegah of land for jute. If the land is moist, a moi or ladder is passed on it two days after ploughing in order to pulverize the earth; the moi is passed on as often as there are ploughings. If the land is dry, the ladder is passed on the same day. The seeds are sown broadcast in the month of Chaitra or Vaisakha after a shower. About a seer of seeds are enough for a beegah of land. In two days they germinate, and when two or three leaves appear we weed out the grass. Some 15 or 20 days after, another weeding takes place, and if necessary, the grass is weeded a third time. Sometimes when the young plants are six inches high, the harrow is passed on the land for the purpose of killing the grass. When the plants are a foot or a foot and a-half high, the stunted plants are removed. Jute is cut in the months of Sravana, Bhadra, Aswina, and Kartika, according to the time in which the seeds have been sown. cut the plants when one or two seed-pods appear. Cutting too early weakens the fibre; cutting too late makes it tough. After reaping, the plants are steeped in bheel water. The steeping is complete in 15 to 20 days. Under-steeping hardens the fibre and over-steeping weakens and discolors it. The fibre is separated by jerks in the water from the root end, washed in clean water, and dried for two or three days. It is then tied up in hanks and sold. The weight by which we sell jute is the seer

of 84 tolahs and 10 annas. I know mesta, but it is not grown here. Sunn is grown by fishermen for nets. Virgin chur land grows the finest jute, and requires no manuring. It is customary to keep a few well-grown plants for seed and cut them in Aughran and even in Pous. The seed. pods are then separated and dried for four or five days and stored up. We do not steep the seeds in water at the time of sowing or at any time. Alternate rain and sunshine favor the growth of jute. Too much of either stunts the growth of the plants which run to seed untimely. The woochinga insect burrows at the root of young plants and destroys them. The beechas attack the leaves and damage the plants a good deal. Drought brings on these insects. The black specks on the fibre are owing to clods of earth placed upon the plants when steeping in water. Accumulation of water in the jute field leads to the fibre being rooty. I work myself on my fields; I use my own ploughs. The expenses may be estimated as follows:-

710 W.S			Rs.	A.	P.
Ploughing and ladder	ing, &c.		7	0	0
Weeding, including 1	oulling t	ip of			
weak plants	• •		2	8	0
Cutting and steeping			1	8	0
Separating the fibre			1	8	0
Drying fibre	• •		0	8	0
Rent per beegah	• •		3	0	0
	Total		16	0	0

The rent of jute land is Rs. 3 the beegah. Manure is thrown in Magha, Falguna, and Chaitra. The yield per beegah of good land is 8 to 10 maunds; no one makes any gunny for sale here. Recently people have been reducing their aus rice cultivation to grow jute. About half the produce of last season is in the hands of mahajuns and paikars. Seeds are sold, but not as a rule.

No. 23.—Moochi Ram Dass (of Kubilpore),— Rungpore, 28th May 1873.

I have been a broker for the last twenty years at Kaligunge. I buy about 10,000 maunds of jute a year, and send it to Serajgunge for sale. I generally give advances to paikars and growers, and charge interest to the growers at the rate of six pie a rupee per month. I do not tie down the ryot to any fixed rate when I make the advance. When the libre is brought to me, I fix a rate and charge one anna per maund for the advance. Both the ryots and paikars bring their jute to me, sometimes in boats and at other times on pack-bullooks. I paid last year Re. 1 to Re. 1-12, and the year before Re. 1 to Rs. 2-12 the maund. There was a sale of about 75,000 maunds here last season. Thansingpore, Gooptorhat, Goddherhat, Nuldunga, Lackpore, Dairapore, Goomarpore, &c., supply this mart with jute. The various chur lands on the other bank of the Brahmaputra also send in jute to this market. I send all my jute by country boats. I believe jute to be deteriorating owing to the growers using the same land year after year for

the jute cultivation, and thereby exhausting the soil. Neither in length, color, and flexibility can the fibre of the present day vie with that of former years, and this deterioration is also attributable to the want of proper manuring of the soil. I charge the parties I buy jute for one anna commission. I employ monthly servants at the rate of from Rs. 4 to 5 per mensem to go about and make purchases on my account from different hats, as also from the growers. Sometimes I drum the fibre, and sometimes I send it off loose. I pay Rs. 3-2 per 100 drums exclusive, and Rs. 3-8 inclusive of food to the people who make them. I have my own boats for exporting jute, and each boat requires six rowers and one manjee. I pay the manjee Rs. 5 and the men Rs. 4 per month. The boat holds about 350 maunds and costs about Rs. 50.

This year there will be about half of last year's crop, and I believe it will be rather inferior owing to the want of rain. The plants about this quarter are drooping and withering. I send my jute to Serajgunge. I buy both aus and amun jute, the former has shorter fibre and not so good The joli or low-land crop is aus, the high-land is amun. I see two kinds of seeds here. From the reddish kind dhola, and from the greenish variety patlai jute is produced; the secd-pods of the latter are long. I am not aware of any patlai fibre being brought here for sale. I work with the capital of the mahajuns living at Serajgunge, and buy jute for them, and get for my commission one anna to the maund, paid by the sellers; the buyer pays for the making up of drums. The cost of sending 100 maunds of jute to Serajgunge is four annas per maund. I never send jute to Calcutta. Besides my commission of an anna the mahajuns in favorable seasons give me a rupec for every 100 or 200 maunds. I buy for Prem Chund Rutton Chund, and for several petty firms. I also purchase on account of the itinerant traders who come here from Serajgunge, Belcoolhee, and occasionally from Dacca in the months of Magha and Falguna. The itinerant traders too give me a like reward. I take from the growers who receive advances from one to two seers of fibre per maund. I make the advance to the growers in Ashadha. I also advance money to the paikars in and out of season. If the mahajun comes to buy, I take money from him, and make an advance to the paikars, who go about and bring jute. The weight on the east side of the Gojarea River is 84 tolahs and 10 annas; that on the west side is 87 tolahs. I buy and sell by the former weight. About one-fourth of last season's produce is yet unsold. The market is gradually going down.

No. 24.—PROTAUB MUL (of Chilmari),—Rungpore, 30th May 1878.

I am a trader in jute and piece-goods at Chilmari. I have been foing this business for the last seven years.

Chilmari is on the west side of the Brahmaputra, and is navigable throughout the year. Formerly we had the jute trade in this part, but

the increase has been marked during the last three or four years. From what I know myself, and from what I have heard, I can state that the trade has been carried on here for upwards of twenty years. I buy and sell some 1,500 to 2,000 maunds of jute. Last year, however, I bought somewhere about 3,000 maunds of it. The fibre grown about here, and what we buy, is of medium quality, and is not so good as the produce of Kankripara and other churs. Generally I purchase white and rarely reddish fibre, the name of which is mesta. In 1278 B.S., I sent some jute direct to Calcutta for sale, but it did not prove profitable; since then I have been sending to Serajgunge. I pay a rupee brokerage for every 100 rupees' worth of jute; I have also to pay Rs. 4 for the making up of 100 drums, and eight annas for dingiwallahs of both the buyers' and sellers' brokers for every 100 maunds, and four annas rent for every 100 maunds of jute sold. Last season I paid Rs. 2 to 3-6 the maund and sold it at Rs. 2 to 4. I sell the jute unassorted. The brokers' firm at Serajunge sends boats to this place and takes away the jute. It cost about Rs. 18 on account of boat-hire for sending 100 maunds of jute to Serajgunge, and Rs. 3 to 4 hire of pack-bullocks for bringing it from our place of business, which is about two miles distant from the river. I buy jute in small quantities from the growers at the Chilmari hat, which is held twice a week, and from the paikars, who bring it to me. I advance money to the growers and to the paikars in the month of Ashádha. I also make cash purchases. In some instances the prices are fixed at the time the money is advanced. In others the condition is that the party receiving the advance will sell to me at two annas below the prevailing market rate. No deed is executed by these men; generally they fulfil their contract. During my experience I have never had occasion to have recourse to law. Small quantities of raw fibre come to the market in the latter part of Ashádha. The import increases in Srávana, and is very brisk in Bhadra. Owing to the increase of price in the season before last, the people about here grew more jute than in other years. The market, however, fell, and, as a consequence, the ryots have reduced the cultivation by six-annas. In the season before last, good jute sold for Rs. 3-8, and in the previous season up to Rs. 4-8 and 5 the maund. I estimate the stock yet unsold at about two-annas. Some 40,000 to 50,000 maunds of jute are annually bought and sold at Chilmari. A large number of itinerant traders also come from Serajgunge and buy from the growers and paikars. As far as this place is concerned I have observed a gradual deterioration of fibre; what I mean to say is, that of late years more inferior and medium jute has come to the market than the superior kind. We don't buy here through brokers, but the itinerant traders do. These men pay the broker one anna for each maund, the seller has to pay nothing. The weight by which jute is purchased here is the seer of 87 tolahs. At Serajgunge the sales are made by the seer of 84 tolahs and 10 annas. As a rule churooa jute does not come to Chilmari. Villages lying within a radius of 10 miles send their jute here for sale.

During the rains, jute is brought here in small open dingies, at other times on pack-bullocks. People generally bring jute in hanks of five seers each. As a rule the growers allow one seer over and above one maund, this is called dholta (brokerage); but when the fibre is somewhat wet another half seer is allowed. I buy and sell on my own account. Each paikar takes an advance from Rs. 10 to 25 at a time; I take no advance from anybody. There was an English firm here belonging to Messrs. F. Wilson & Co., who bought some 60,000 or 70,000 maunds of fibre and sent it by steamer; but there is none now. In the season before last I sent some jute by steamer to Calcutta, and it cost me 13 annas per maund. This year, however, the freight has been reduced to six annas. The aratdari charge in Calcutta is one rupee for every 100 rupees, worth of jute. Gunny-bags are not made here. Churooa pat is sold largely at Kankripara, and bought up by the itinerant traders. Teeta jute scarcely comes here, but the English firm last year made large purchases of that jute.

No. 25.—Bajaroo Bepari (of Sheikerhat),—Rungpore, 31st May 1873.

I am an agricultural ryot holding some 12 beegahs of land, of which I grew jute on 2 beegahs and got 12 maunds of fibre, which I have sold at the rate of Rs. 2 per maund. I have sold to the paikars who come to our houses to purchase it. I grew dhola kosta, the fibre was 6 cubits long. There are two kinds of jute, viz., aus and hemunto; the former is early, and the latter late. The red jute is also grown here. It is called mesta. I grew both kinds. Aus was sown in Chaitra, and cut in Ashádha and Srávana; hemunto sown in Vaisakha and cut in Bhadra and Aswina. Aus is grown on low lands upon which common paddy grows, and hemunto on land neither very high nor very low. The late or hemunto fibre is better, i.e., it has better grains than the aus. The aus is grown and cut early, in order to escape floods and accumulation of water. Jute grows on both high and low lands. I own 16 heads of cattle, and the cow-dung obtained from my cow-house is used in manuring two beegahs of jute land. The ground is manured in January (Magha); we store up cow-dung. The stalk of the dhola pat is greenish, and the leaves light green; the seed-pods are round, and the seeds deep brown. I cannot describe the mesta. The yield of a beegah of rich soil is eight to ten maunds, and that of ordinary land four to six maunds. I do not grow jute under advances. In our part of the village, the people do not take any advances, but when the plants are on the ground, some people take money from the paikars. In such cases, the seller sells at one anna and two annas less than the market rate. I steep jute in bheel water, and cover the stalks with the tops of the plants previously cut off. Color depends upon the quality of water used; dirty water produces muddy color. Over-steeping weakens the fibre; under-steeping makes it woody. Fertile soil grows fibre with

good grain; and weak and used-up land produce weak fibre. The black specks on the fibre, I alluded to, are caused by the plants coming in contact with each other during a storm. Understeeping also begets black specks. The runners are caused by certain parts of the bundle not sinking well and getting exposed to the action of the sun. We steep plants from 15 to 20 days. I commence cutting the plants when they are just commencing to get into seed. The fibre then looks nice, but is light in weight. Jute on low lands must be cut before the inundation, whatever state it may be in. The plants are steeped as soon as cut. If these be kept in the field and exposed to the sun, the fibre becomes coarse. After rotting, the fibre is taken out from the root-end by repeated jerks in the water; the thick end being broken one cubit above the end. Jute does not grow more than two years on one and the same land. It is rotated with aus paddy and rape-seed, which we grow for two and three years, and then we grow jute again there. We do not grow anything on the low joli land; after the removal of jute, we sometimes sow mustard on jute land in cold weather. Matial land grows the best jute which is brought from Kankripara. Matial is poli land (mixture of sand and clay). I do not sell jute to itinerant traders. Last year people grew jute largely, this year the cultivation will be eight-annas less. The fibre is getting inferior every year, the causes of this deterioration are insufficient rainfall and weakness of the soil. I am not aware of any instance in which inte has been abandoned in the field.

No. 26.—Sheik Sooa (of Bagooah),—Rungpore, 5th June 1873.

I am an under-tenant and hold 40 beegahs of chur land at an annual jummah of Rs. 27. I have been growing jute for the last 10 years. Last year I cultivated two beegahs with white jute, and got 10 maunds of fibre which I have sold to paikars at Rs. 2 per maund of 87 tolahs to the seer, which is the normal weight in this place. In the season before last I sold jute grown by me at Rs. 3 per maund. Jute is not grown ander advances. The paikars come to our houses, inspect the fibre, and strike the bargain. We do not allow for dholta or brokerage. This year I have sown two beegahs. The plants are seven or eight inches high, but their growth has been retarded by the drought. In the early part of Vaisákha, after a shower of rain, I sowed two beegahs of land with about three seers of juteseeds, the seeds being sown broadcast. There have been hailstorms in our part of the country, but they have not done much harm. I and my neighbours manure the land for jute with cowdung, ashes, and oil-cake. Cow-dung is the best manure. People who have not cattle enough buy oil-cake. I cannot say how much cow-dung suffices for a beegah of land. Cow-dung is not bought and sold. People buy one or two rupees worth of oil-cake and put it on a beegah. We sow jute on chur lands. The chur I lease has been

formed for about 40 years. A chur formed about 10 years will grow a jute crop. There is no special rate of rent for jute land. The land upon which I grow jute is not inundated annually. It has not been so for the last four or five years. is good for the fertility of the land if it be annually flooded. I cut the jute plant in the month of Kartika, just when it is running to seed. The stalks and leaves of the jute I grow are light green and the seed-pods globular. I have not seen any other kind of jute nor mesta. One plot of ground is not sown with jute for two years running, for ait weakens the soil as regards its own growth, but it grows aus paddy and kulai in the following year. If the soil be good doas, and well manured, then a beegah may yield from five to six maunds of fibre-not more. We grow medium jute. We steep the jute at once after cutting, preferring the water of a khal or bheel. A large sheet of good water ensures a good white color. Plants that are stunted do not rot well, and runners are to be seen in the fibre. The stalks are steeped for 15 to 20 and even 30 days. The fibre is separated from the reed by jerking in the water. It is then washed in the same water and dried for two days on a bamboo scaffolding. Jute cultivation has been carried on here for the last seven or eight years. The paikars come here annually to buy jute and send it down in country boats to Serajgunge, where they sell it to mahajuns. Sometimes a needy ryot takes a quantity of jute to the market, sells it there, and with the proceeds of the sale buys oil, salt, &c. The cultivation of jute in our part of the village has not been lessened this year. There is no Chaitra or early sowing here. Some people grow mustard on land destined for jute. Some years the fibre turns out good, some years inferior; its quality depending upon the weather and the care bestowed in preparation. Alternate rain and sunshine favor the growth of jute. In this part of the country the Kankripara jute is the best; why it turns out to be so is more than we here can tell. As a rule advances are not taken, but some ryots pressed for money take it. Those who take advances fix the price at which jute has to be delivered to the advancing party. No advances have been given and received this year. The mahajuns say they have in their hands last year's jute still unsold. How much remains in their hands is more than I can tell. A few growers have not sold their crops entirely.

No. 27.—Pancha Shrik (of Digolkande),—Rungpore, 7th June 1873.

I hold 124 beegahs of land at an annual jumma of Rs. 140. I cultivate 30 beegahs myself and sublet the remainder. Last season I raised on 4 beegahs 20 maunds of jute which I sold to the mahajuns of Chilmari at Rs. 2 the maund. I do not grow jute under advances. This year, as jute cultivation generally has been reduced by sixannas, I have cultivated 3 beegahs only. The drought of Vaisákha and Jyaistha has dried up a good many plants. There was drought for 40 days, and we have rain last three days only. I grow white jute, called dhola kosta, and red jute,

called mesta, and also tosha here. The stalks and leaves of the white jute are light green, and the seed-pods globular, while the stalks of the red jute as well as the veins of the leaves are red, and the seed-pods elongated. The seeds of the mesta or tosha are blackish, and of the dhola pat reddish. The tosha has longer fibre than the dhola pat. The fibre of the latter is separated by jerks in the water about a cubit from the thick or root-end; and that of the former in the same way and at about the same length from the thin or top-end. There are knots in the red jute plants which prevent the separation of the fibre from the rootend. I grow jute on high aual land, composed of sand and clay, and manure with cow-dung and ashes. I cannot say what quantity of cow-dung is used; but I estimate is to be about 30 maunds. Cow-dung is, in our part of the district, bought and sold. It is sold for about Rs. 2 the maund. In the month of Falguna and Chaitra before the two last ploughings, the manure is thrown in basketfuls here and there, and after two or four days the ground is ploughed up and passed under the ladder. The rule is to cut the plant when in flower. The fibre then turns out to be very fine and glossy. It is well to steep the plants soon after cutting; if left for two or three days in the field, the color of the fibre becomes reddish. Both white and red jute seeds are sown either in Chaitra or Vaisákha, and the plants cut in Bhadra and Aswina, also in Srávana, but in very small quantities. The plants are steeped in deep water which has no current; stagnant water rotting them sooner than still river water. Jute cultivation has been carried on here for the last 25 years or so. I do not grow jute on the same land for two years running. I let it rest from jute for three or four years. Jute land produces good aus paddy in the year, after a jute crop has been raised. The fibre is sold by the weight of 87 tolahs to the seer. The jute from plants cut when in seed, weighs lighter than the fibre from plants cut in flower. It costs-

		Rs.	A.	P.
	•••	5	14	0
•••	•••	2	13	0
	•••	0	• 6	0
•••	•••	1	8	0
•••		0	15	0
up, 2	men	0	6	0
• • •		0	4	0
•••	•••	1	U	U
l'otal	•••	13	2	0
	up, 2	up, 2 men	5 0 1 0 up, 2 men 0 0 1	5 14 2 13 0 6 1 8 0 15 up, 2 men 0 6 0 4 1 0

We ourselves work on the field. Ploughs as a rule are not let on hire. The rent of paddy land is 10 annas, and of jute land Re. 1. Eighty hats (each hat of 19½ inches) make a beegah in our pergunnah.

No. 28.—HURRY NARAIN DASS (of Roodrapore Kankina).—Rungpore, 18th June 1873.

I am a cultivator, holding 1½ beesh of land, upon which I raise dhan, jute and tobacco. Last season I grew jute on 1½ poah done of land. This year as jute cultivation has been lessened by about

eight-annas in our part of the country, in consequence of the falling off in prices, I have reduced my own cultivation to one poak. Last year the shooapocka insect, which is very destructive and appears periodically, irrespective of rain or drought, attacked the plants in Sravana, ate up the tops and destroyed an entire field of jute. I consequently got 11 maund of fibre, which I sold for Re. 1-8 the maund. I grew dhola pat (white jute), the stalks and leaves of which are light green, and the seed-pods globular. People in this part grow also red jute, the stalks of which are red and the seed-pods globular. I do not know what is parbutea pat, and I have not noticed elongated seed-pods in any jute plant. I grow jute on high bari lands, which I manure with cow-dung. Some people use oil-cake also. The soil is an admixture of sand and clay.

In the month of Kartika, we commence ploughing land for jute. After tillage in that month, we grow tobacco on it. In the months of Magha and Falguna, we reap the tobacco harvest. In the Chaitra following we manure the land and plough it seven or eight times. Some people, who have no ploughs, turn up the earth with kodalies and then sow jute. It requires turning up in this way 12 or 14 times. In the month of Vaisakha on a clear, sunny day, after a shower of rain, the seeds are thrown broadcast. One seer of seeds suffices for a done of land. In ploughed lands the seeds are covered with a thin crust of earth by the ladder being drawn over thom. Where the kodalie is used, the seeds are covered with earth by hand. When not covered, the seeds dry up and do not germinate. The young shoots are above the ground in three days.

The grass is generally weeded out twice, but once only, where the grower cannot afford the cost. After 20 or 25 days from the first weeding, when the plants are about a foot high, the field is weeded again and thinned. If this process is neglected, the stalks do not become pulpy. The plants are then cut in Bhadra and Aswina, when in flower, which is the proper time for cutting. If plants in seed are cut, the fibre becomes coarse and woody: The plants are cut near the ground with a sickle, and the tops are lopped off. The green stalks are kept standing on the field for two days to let the juice dry up, when the stalks can be more speedily rotted. Plants so treated yield, when dressed, a good white fibre. But the process of rotting becomes difficult if the stalks are kept in the field for three or four days. After this partial drying, the stalks are steeped in waist-deep bheel water. We do not steep plants in the Teesta, because the process of rotting is delayed, and it is difficult to keep the bundles into which the stalks are tied in one place in a running stream. After 15 or 20 days' steeping, the fibre is separated by breaking the plant a cubit above the root, and by repeatedly jerking the stalks in water. The fibre is then washed in the same water, and, after the water has been wrung out of it, is dried for three days, after which it is tied up in hanks of five seers each. The fibre is sold either at the hats or at the grower's house to paikars, who again dispose of it to the goladars.

The jute grown here is called Kankina pdt, and is taken to the mart at Serajgunge by the mahajuns. Jute is not grown here under advances. It is sold by the weight of 60 tolahs to the seer. The jute we prepare is good, i.e., of a white color, and about six or seven cubits long. But if the stalks are steeped in dirty water, the color becomes either muddy or reddish. Year before last we sold jute at Rs. 2-4 and 2-6 the maund. Last year's crop has not been entirely sold for want of purchasers; about six-annas yet remain on hand.

Jute is now selling at Re. 1-6 and 1-8 the maund; we sell jute at Kankina hat which is held on every Tuesday and Friday. Under-steeping leaves much bark on the fibre, and over-steeping impairs its strength and color. A done of land well manured yields from 2 to 21 maunds of fibre.

I keep well grown plants for seed, and cut them in the month of Aughran. At the beginning of the season there was a drought, and the plants were not thriving; but the recent rains have changed the prospects of the crop, the plant is now about five feet high. I grow jute year after year on one and the same land; but I manure it well. Those who have several plots of good land select a new field every year.

Alternate rain and sunshine are essential to the growth of the jute plants; and while drought stunts them, excessive rain prevents them from thriving, and gives a red color to the fibre prepared from them.

Jute is carried on the head of men and in. bangies. It is sent down to Serajgunge in country boats by the Teesta and Brahmaputra. Gunny is not manufactured here.

No. 29.—SHEIR AMANUTHOOLLA (of Kankina),— Rungpore, 18th June 1873.

I am the sirdar (head) of the peons employed by the zemindar of Kankina. I hold tenures on a jumma of Rs. 1,600 per annum, mostly underlet. I retain only about one and a-half beesh of land, on eight dones of which I grow jute. Last season I raised on five dones ten maunds of fibre, which .I have not sold. I also deal in jute. 'I purchased 600 maunds of the Teesta jute about the Doorga Poojah time last season at Rs. 3 and 3-4 the maind, and sent to Calcutta in country boats by the Teesta and Brahmaputra as far as Goalundgand thence by rail. In Kartika and Aughran, when the market fell, this kind of jute was sold for Rs. 2. The jute I sent down was sold in Calcutta for Rs. 2-8 and 2-6 the maund of 80 tolahs to the

• Fibre Boat to Goalundo Railway fare to Calcutta Coolie and cart-hire (a) Godown-hire in Calcutta (a) Aratdari and brokerage	0 5 0 0 5 6 0 1 6 0 0 11	seer; although each maund, in- cluding the ex- pense of transport to the Presidency, cost me about
Total	8 13 4	Rs. 3-12*. Jute sent to Calcutta

(a) These charges are made by the Marwaree aratdars; Bengalee firms charge two annas per maund sold. Both Marwaree and Bengalee firms take godown-hire.

is drummed here at a cost of Rs. 4-8 for 200

drums of kutcha two maunds more or less each. It is sent to Serajgunge both in drums as well as in hanks of from five to five half seers each, which cost five annas for 100 hanks. The maund is of 40 seers, of 60 tolahs to the seer. It costs Rs. 4 to send 100 maunds of fibre to Serajgunge, where I sell by the seer of 84 tolahs and ten annas. The same rates prevail at Serajgunge as at Calcutta, only we have to give some jute over and above what is paid for at the former place.

The jute I grow on my own land has been kept for home use.

We all grow here both white and red stalked jute, the seed-pods of which are globular. The fibre got from the latter variety is reddish, and is not sold at a high price. The red jute is called lal pat. The fibre of the white jute is fine and glossy, and commands a high price in the market. It costs about Rs. 6 to grow on one done of land including rent as per following detail:—

Rent		A. ()	
Sixteen ploughs for four days, including sowing Two weedings, including pluck-	1	0	0
ing out bad plants, four men	ļ	0	0
Cutting, four men Separating, drying, &c	1	0 4	0
Total	6	4	0

The yield of a *done* of good land here is two and a half maunds, or two maunds and 30 seers.

Doas bari or home-stead lands are best suited to the growth of jute. Land is manured with cowdung and sometimes with oil-cake. There is no certainty as to the quantity of cow-dung used; but about two to four seers of oil-cake costing 1 rupee per kulcha maund are used on a done. Cow-dung is not bought and sold. In Kartika or Aughran the jute-land is generally manured with cow-dung and ploughed up. Oil-cake is thrown before the seeds are sown in Chaitra or Jute is cut in Srávana and Bhadra partly in flower and partly in seed. I do not cultivate with my own hands. Paikars bring jute to Kankina in carts and boats from the villages of Habibonda, Baora, Julpigooree, Gontawari, Debikhoon, Fukeergunge, Shitae, Neckligunge, and sell it to the mahajuns who send it to Calcutta or Serajgunge. Steamers do not come here. The soil on the banks of the Teesta is more sandy than clayey. I cannot say why people grow red jute when its fibre does not turn out to be good and white. Jute is steeped in tanks and bheels and occasionally in still river water. Jute cultivation, which was on the increase for the last three or four years, will be six annas less this year owing to the low prices of last year. The fibre has, in my opinion, been recently deteriorating because people in the hurry of coming to the market cut the plant too early, and before it is quite dried tie it up in hanks,—the result has been that the fibre is weak and the color bad.

Kankina jute is neither very good nor bad, but of medium quality. In the season before last I sold jute in Calcutta up to Rs. 5 the maund.

Goberdhone jute comes to this place for sale. The system of advances to the growers or paikars is unknown, nor is brokerage allowed in dealings here. The Kankina mahajuns buy and sell some sixty or seventy thousand maunds of jute yearly; last year the cultivation of jute in our part was the largest.

Jute land, as a rule, is ploughed, but small cultivators who cannot afford the cost of a plough use the *kodalie*. Jute leaves (both white and red) are eaten as pot-herbs, and sold in the market.

Under-steeping makes the fibre woody.

No. 30.—Godadhur Shaha, Hureenath Shaha, and Ram Chunder Shaha (of Kankina),—Rungpore, 18th June 1873.

We have been buying and selling jute for the last five to seven years. Jute cultivation and trade have been on the increase for the last seven years or so, and before the last season the price of a maund of Teesta jute ranged from Rs. 3 to 4. Last season we bought for Rs. 2, Rs. 2-4, Rs. 2-8 and Rs. 2-12, and sold it in Calcutta at a loss of Re. 1 and Re. 1 4 the maund. We send jute to Calcutta, sometimes in country boats of 700 to 1,200 maunds burden; at other times in smaller boats as far as Serajgunge and Goalundo and thence by rail to Sealdah. It costs 12 to 14 annas for sending jute to Calcutta, some times as much as a rupee, i.e., from the latter part of Aughran to Chaitra, when we employ small boats of 200 maunds as far as Kanorgori, 24 coss off, and there tranship the jute to larger boats. We do not make use of the steamers, as they do not come up here. The River Teesta is too unsafe for steamers which we would prefer to boats. I, Godadhar, buy and sell from seven to ten thousand maunds. I, Horonath, and I, Ram Chunder, buy the same quantity. We purchase jute from paikars. We do not make advances to the growers, but the paikars occasionally take some money in the beginning of the jute season.

The paikars buy in hats, and in the houses of the growers. Teesta jute generally has a red tinge; pure white color is rare here. The water of bheels, tanks, and the river, in reddish in this part of the district; hence, we think the red color of the jute. Besides, the people here tie up the jute in hanks while it is wet, and that gives a red color. We do not think the red plant yields red fibre. Jute fibre is gradually deteriorating, for ryots grow more jute than they can look after. The cultivation this year has been six to eight annas less; jute sold here is called Kankina pat. We also send jute to Serajgunge at a cost of seven and eight annas per maund, not for sale there, but simply for transmission by steamer to Calcutta, where we have our own firms. We never send jute to Dacca or Naraingunge. We buy at the seer of 90 tolahs. Jute is brought here from Nickligunge, Baora, Natagunge, and the villages lying at a distance of one day's walk. The paikars. bring jute in carts or in small boats of 25 to 30 maunds. Half of the Teesta jute has yet to come to the market. Its present price is Re. 1-12 the maund. We do not charge any interest nor take

any over-weight from the paikars. The sellers give one to two seers as dholta (brokerage) over and above a maund. The paikars bring wet jute for sale. We drum the fibre here at a cost of Rs. 3 for 100 drums. We send jute yearly by the Teesta and Brahmaputra, and then via the Soonderbuns and the canals. The gunge (mart) of Kankina sends about 60,000 to 70,000 maunds yearly. The traders come here from Serajgunge and buy up from the paikars whom they allow one anna brokerage on each maund bought.

No. 31.—Sheik Motiwoollah, Nazir Mamood; and Chuttoo (of Kaligunge),—Rungpore, 19th June 1873.

We are cultivators. I, Motiwoollah, hold a tenure of 22 dones. I have grown jute on half a done. Last season I raised half a maund of fibre on a plot of the same extent.

I, Nazir Mamood, hold one bish or twenty dones of land. I grew jute last year on half a done and got one and quarter maund of fibre. This year I have cultivated the same extent of land.

I, Chuttoo, have a tenure of five dones of land; I grew jute last year and got about twenty seers of fibre. I have grown this year on a little above quarter of a done.

Jute last season sold at one rupee and eight annas and one rupee and twelve annas per maund of 90 tolahs to the seer. Jute grown here is called by the trades-people kaligunge kosta.

We all grow dhola kosta (white jute), the stalks and leaves of which are light green, and the seed-pods globular.

People grow red jute, but in small quantities. The stalks of these plants are red, and the seedpods are somewhat reddish.

In this part of the country the parbutea pât, of which the seed-pods are long is not grown. Jute fibre is sold by us at the Kaligunge Hât as also to the paikars who come to people's houses and buy.

On the banks of Tecsta we cannot grow jute in large quantities because we have no place to steep the stalks in. The Teesta current is strong and the steeping bundles are carried away, besides tanks, drains, and khals are not numerous here.

Jute is bought by the mahajuns of Kaligunge from the paikars who forward it to Calcutta direct in country-boats as also to Goulundo and Serajgunge. Itinerant traders from Serajgunge come here annually in the months of Bhadra and Aswina, buy jute in hals and from paikars and take them away in boats they bring up.

Jute is not grown under advances. People have been growing it for the purposes of trade for the last 14 years or so; but its cultivation for home use has been known from time immemorial. While this cultivation has increased, rice cultivation has not materially suffered. The aus and amun rice crops have in some localities been reduced very little.

Jute grows both on aus land and on joli (watery) land; it is sown in Fálguna and Chaitra on joli land and cut in Ashádha and Srávana, before water accumulates in the field. If water accumulates,

roots shoot out, and the fibre is spoiled. In some places after the jute crop, late paddy is cultivated.

Jute is shown on high-land in Vaisakha and reaped in Bhadra and Aswina.

Jute does not grow well on the same land for two years running. New land is yearly chosen for this cultivation. Aus and amun paddy is ortated with jute.

Cow-dung and sweepings are used as manure on jute land in Fálguna and Chaitra. Harrowing commences from the month of Fálguna. Cowdung is not bought and sold. No manuring is used after the sowing; oil-cake is not in use in this part of the country.

The cutting of the jute plants begins with the apppearance of the flowers. The fibre from such cuttings is glossy and of a fine white color. If the plants are cut when in seed, the jute is reddish.

The Teesta jute has a reddish tinge on account of the scarcity of water for steeping.

The plants after cutting are left standing in the fields for two days; as when partially dried they rot sooner.

People plough their jute land. On joli land the plants give a larger yield of fibre and the crop is abundant; but the quality of the fibre is best on high bari (homestead) lands. Soil composed of clay and sand produces the best jute.

A done of good land, well manured, yields three to three and half maunds of fibre. Drought and excessive rain are not favorable to the jute plant. Alternate rain and sunshine are essential to its growth. In times of drought the aicha insect eats up the leaves and damages the plants considerably.

The cultivation of jute last season was large, owing to the high price it fetched the year before. This year, in consequence of the reduction of price in the last season, a fourth less land has been sown with jute.

A plot of land, if well manured, will grow jute for two years; but the yield will be four annas less on the second year. We tie up jute in hanks of five and ten seers for sale. Wet jute, as a rule, is not so tied up. Last year it rained very heavily and continuously in the months of Ashádha and Srávana, and the jute plants turned red. The fibre consequently was of inferior quality. There is no special rate of rent charged for jute land. Jute seeds, as a rule, are not bought and sold. People keep their own seeds.

No. 32.—Sheir Imaumbux, Hashil Mamood, Oberam Doss, and Boodhoo Doss (of Bhotemari),—Rungpore, 19th June 1873.

I, Imaumbux, grew jute on five dones of land last season, and got about 22 maunds, which I sold at Rs. 1-12 to Rs. 2 the *kutcha* maund of 60 tolahs to the seer. This year I have grown on four dones only for want or labor.

I, Hashil Mamood, grew jute on four dones last year, and got four maunds of fibre from one done, but the remaining land did not yield a good crop. I sold it at Rs. 2 per maund all round. This year I have reduced the cultivation to one done.

I, Oberam, raised three maunds of fibre from one and half done. The yield would have been larger if I could have attended to the cultivation. I sold the jute at Rs. 2 the pucka maund. This

year I have grown jute on one done only.

I, Boodhoo Doss, cultivated only half a done and got two maunds of jute, which, in the season, I refused to sell for Re. 1-12 the maund. The fibre is yet unsold. I have this year grown on half

a done only.

Except Boodhoo Doss, who grows both white and red jute, we grow white jute only. The seedpods of both are globular; but the stalks of white jute are light green, and those of the red variety are reddish. Parbutea jute is not grown here, the seed-pods of the last description are elongated. It is grown by the people on the north at a distance of two miles. Both the former description of plants yield good jute, and if properly washed, present good white color. We know from experience that if jute stalks are steeped in insufficient and shallow water, the color of the fibre turns out to be reddish. The tillage of jute land begins in Mágha, and the sowing, when the land is low, in Fálguna and Chaitra. The high-lands are sown in Vaisákha. The early sowings are cut in Srávana, and the late sowings in Bhadra and Aswina. Jute is and ought to be cut in flower, otherwise the fibre gets coarse. We steep the stalks in still river-water, placing the tops of the plants upon the bundles into which the stalks are made up. We also sprinkle cow-dung and earth upon the steeping bundles to ensure a speedy rotting. generally steep jute at once after cutting. This is better than steeping two days after cutting. The fibre is fit for separation after 15 days. Fibre of plants cut in seed does not rot before 22 days. Good fibre is produced from the plants grown in homestead lands. We manure the land with cowdung and ashes. We do not grow jute on the same land for more than two years running. On the third year jute will not grow on the same land. Aus paddy is rotated with jute, and if the land is low, with amun paddy also. The land is grown with paddy, &c., for two or three years; it is then again cultivated with jute. Jute grows well on doas land. Plants kept for seed are cut in Aswina and The seeds are then dried for three days.

We keep good plants for seeds; we sell jute at the hats and occasionally to paikars who come to our houses to buy it. We do not grow jute under advances. We sell by the kutcha weight of 60 tolahs the seer. Socari or aitcha attacks the jute plants in seasons of drought and damages them considerably. The cultivation, which has been on the increase for the last 7 or 8 years on account of the high prices jute sold for, has been this season reduced by six or seven annas from that of last year. Formerly it used to be grown only for home use. The cost of growing jute on a done of land is about Rs. 4 or 5.

Ploughing ... 1 Rent Weeding ••• Cutting Separating and drying, &c. 5 7 0 Total

Jute will not pay if grown with hired labor and ploughs. We all work ourselves on the fields and use our own ploughs. If sold at Rs. 3 the pucca maund, it will pay the grower fairly. There is no special rate of rent for jute land. Sunn is grown by the fishermen in small quantities, and they make their nets with the fibre. Mettee is not grown here.

No. 33.—DHOJIER MAHOMED, BUXOODALLAL, AMEER DALLAL, DHORKA DASS, KEENA NUISHO. AND INNATOOLLAH SHEIR (of Goberdhone),-Rungpore, 20th June 1876.

I, Dhojier Mahomed, raised six maunds of jute from two dones. This season I have cultivated half a done only. I, Buxoo Dallal, grew jute last season on 11 done and got four maunds of fibre. The cultivation has been reduced to one kali only this year—(16 kalis make one done). I also am a jute broker.

I, Ameer Dallal, am also a jute broker, and

cultivate a little jute for home use.

I, Dhorka Doss, got 2 maunds of jute from a done of land last season. This season I have sown on the same extent of land. I, Keena Nuisho, had a cultivation of one done last year; the yield, on account of the inferiority of the soil was 11 maund of fibre. This season I have cultivated three-fourths of a done.

I, Innatoollah, grew jute on 1\frac{1}{4} done, and obtained four maunds of fibre. This season I have sown

half a done only.

At Goberdhone we do not, as a rule, grow jute on more than two or three dones; but we produce good fibre, and if we extend our fields, we will not be able to pay that attention to the cultivation of the plant and preparation of the fibre required in the manufacture of a good quality of jute.

The cultivation of the staple for purposes of trade has been going on for the last 20 or 22 years, but the increase has been marked within the last

10 years.

Formerly Mr. Stewart of Kaligunge had an agency at Goberdhone; but it has ceased to

exist for the last our years.

We now sell our jute either to the people of the Serajgunge firm of Bheem Gour Mohun Roy, or to itinerant traders from the village of Bhodor Simla to the north and from the viliage of Shealcole to the east of Serajgunge, who come here in the months of Bhadra and Aswina, and stop till Chaitra and Vaisákha, when they make their purchases and go away. Last season in the months of Bhadra and Aswina Goberdhone jute was sold at Rs. 3 and 3-4, later on at Rs. 2, and at the present time it is being sold at Rs. 1-12, 1-14 and 2 the maund.

About 15,000 maunds of the jute, known as Goberdhone kosta, are annually bought and sold here. There is no bazar or gunge here. Some of us act as brokers and buy jute for the traders; charging half an anna brokerage from the buyers, and half an anna from the sellers per maund.

The growers would very much like to have an

agency house of some buying firm here.

Some of us go to Cooch Behar, Kissoorbari, Adabari, Shetee, Koomerirhaut in Rungpore and buy jute from those places, the funds being supplied by the Serajgunge firm above alluded to, and by itinerant traders. We buy and sell by the weight of 90 tolahs to the seer. We do not know at what price the mahajuns sold Goberdhone jute. People about here grow both green stalked and red stalked jute. Dhola variety is largely grown, and yields fine and better colored fibre, the red plant produces fibre of a reddish tinge, which is sold at two to four annas less the maund than the white variety.

The pods of both varieties are globular and the seeds of a brownish color.

The fibre prepared at Koomerirhaut, about six miles north-east of the Forunbari Thannah, is of the best quality, and for this reason that the bundles when under steeping are covered with Shoontee plants, (abeer, or the red-powder used in the holi festival is made from them) which gives a fine white color to the fibre.

Here, we place the tops of the jute plants, and the leaves of babore trees upon the bundles, when

first put in to be steeped.

Three days after we place clods of earth upon them, to make them sink below the surface. No weight is necessary at first, because the stalks are then heavy. Babore leaves are sacred and we place them to propitiate the deity; steeping this way is called Dhurm jank.

We bring jute from Cooch Behar and other places generally on pack bullocks, rarely in carts, for there are no roads. A bullock can carry two maunds pucca; but we place eight to ten maunds on a cart.

The mahajuns either bring boats from Serajgunge or hire them here, and it costs from Rs 25 to 30, to send 100 maunds of jute to Serajgunge.

We pay eight annas for each bullock from Shinter in Cooch Behar, and four annas from Koomerirhaut.

We steep jute in the still water of the Teesta as well as in bheels. The jute plant cut in full flower and just getting into seed yields a nice glossy fibre. If cut too late, the fibre is full of bark or woody. When cut too early the fibre is clearer and looks more glossy, but it is very weak. After cutting, the plants are kept standing in the field for two days to allow the juice to dry. So treated. the stalks rot more quickly, and the fibre is not injured; steeping for 15 to 20 days prepares the stalk for manufacture. Insufficient or dirty water gives muddy color to the jute.

We dallals buy from paikars as well as from growers in hats and in villages. There is no rule about dholta (brokerage). It is sometimes 1 poah and sometimes 1 seer and 11 seer over and above

the maund.

Generally we buy dry jute; but occasionally

it is brought in a wet state.

At Goberdhone inte is tied up in hanks, each hank weighing about three seers, and costing Rs. 3-2 for the making of 100 hanks. We are aware of no process for bringing on the red color. People buy inferior fibre from other places and pass it as Goberdhoue jute. Jute is gradually

deteriorating at places, for more is grown than can be well looked after. Good high matial land mixed with a little sand produces jute well. Low lands are sometimes sown with jute; but the fibre does not turn out good. A done of good soil well manured yields three to four maunds of fibre. We manure jute land with cow-dung and oil-cake. Cow-dung is thrown at all times, but not after sowing. Oil-cake is put on the field when the plants are about a foot and upwards high, and the grass is weeded.

Ploughing begins in Magha, and the seeds are sown in Fálguna and Chaitra. The Vaisákha sowings do not turn out well. A pucca seer of seeds suffices for a done of land. Seeds are not sold. Good plants are set apart for seeds. Jute plants are cut in Bhadra and Aswina generally.

This year the cultivation of jute has been one half of last year's; the ryots lost by the low prices. Then after the sowing drought came on and in many places the seeds did not at all germinate. The plants have now recovered and look healthy. We have not seen jute with

elongated seed-pods.

Where spare land is available, jute is not grown upon the same field for two years running; and when the same field is cultivated with it for two and three years, the land has to be havily manured. People go about the field with bangis and collect cowdung, for the jute land. Aus dhan, as a rule, is rotated with jute, on the second or third year after which jute is again raised. Jute weakens the soil more than any other crop. The land which grows jute for two or three years will never grow tobacco.

We leave jute land either fallow during the winter or grow tobacco on it. Tobacco is reaped in Fálguna and Chaitra, and soon after which jute is sown with, or without, additional manure. Land on which jute is grown for three years successively, is also cultivated annually with the tobacco in the cold months, though the crop of the latter does not turn out to be good.

Aicha attacks the jute plants in seasons of drought and eats up the tops and leaves. Chhutre is a blight which injures the plants during excessive rain when neck high, drying up the leaves, and thinning the stalks. The fibre from these stalks never find purchasers.

Alternate rain and sunshine are favorable to the plants when quite young, but when the plants are about a foot high sunshine is absolutely necessary, and afterwards alternate rain and sunshine again. The cost of cultivation is as follows:-

Rs. A. P. Rent of a done 1 0 10 ploughings 1 4 Two weedings and pulling up the bad plants Ο, 0 1 Cutting, &c. ... 0 12 0 Separating, &c. 0 0 8 Drying 0 2 4 10 0 Oil-cake 0 8 - 6 Total

The fibre is separated by repeated jerks in the water, the stalks having previously been cut about a cubit from the root-end and sufficiently steeped in water.

Jute is not grown under advances here.

Growers frequently carry the fibre to the kát on their shoulders and on pack bullocks, and sell it there to the dallals and paikars.

Gunny is not manufactured here.

No. 34.—Gopal Chand, Kooneram, Jyth Mull, Bucktar Mull, Luchmi Chand, and Bhoora Mull, Oswals (of Meergunge),—Ruugpore, 21st June 1873.

We have been from ten to twenty years engaged in the jute trade, about 20,000 to 25,000 maunds of the fibre are annually exported from this mart to Serajgunge. We buy the Teesta jute, as also jute from a distance of twenty miles, which is brought here on pack bullocks. We buy by the weight of 90 tolahs, and sell at Serajgunge by the weight of 84 tolahs and ten annas to the seer. We make our purchases in cash from the paikars as also from the growers, but not through brokers and aratdars. We do not make any advances. We send jute in hanks as well as in drums in cor try boats via the Teesta and Brahmaputra. A nundred hanks, weighing twelve and a half maunds cost us Rs. 8-2 for making, and a hundred drums, Rs. 2-12. The hanks are made up into drums at Serajgunge, costing us another Rs. 3-2. We cannot generally send jute in drums; because intending buyers, at that place, suspect the quality of the fibre inside. No steamers come here. Now a days it costs us six annas to send a maund of jute to Serajgunge, but in dry months it costs us two annas more. We purchased jute last season at-Re. 1-8 to 1-12 the maund, and sold it at Re. 1-12, 1-14 and 1-15 the maund. We sell through aratdars, who charge us commission at Re 1 for every 100 maunds, besides half a maund of jute, viz., ten seers for the byerus' and sellers' dingiwallahs, and ten seers for the guddeewallah of the aratdars. Half a seer is allowed as dholta (brokerage) for each maund. Besides the Peer and ferryman take some jute by We trade both with our own way of presents capital and with the capital of the mahajuns of Serajgunge. The capitalists charge us Re. 1 as interest for every Rs. 100 per month, 1 rupec batta, and one rupee hoondian for every Rupees 100. Besides these charges we are obliged to sell jute through those capitalists only who lend the money. The jute trade has been carried on here for upwards of twenty years; but since 1252 B. S. it has increased year by year. A few itinerant traders also come here from Serajgunge and Goalparah to buy jute. New jute appears in the month of

We do not send jute to Calcutta. In buying here we do not charge any dholta (brokerage). In the season before last we bought jute at Rs. 3 to 3-4 and 3-8 per maund, and sold at Re. 1-8 to 3 the maund. We sustained losses during the last two years. In the year before we bought at Rs. 2-8 and 3, and sold at Rs. 3, and 3-8 and 4 the

maund. Meergunge jute is sometimes woody; because the growers to obtain a large yield, cut the plants late, and at a time when the water in the tanks, &c., is dried up. The jute is consequently coarse and insufficient steeping causes the bark to stick to the fibre besides spoiling its color. We have repeatedly pointed this out to the ryots; but they do not heed us, and persist in old customs. Ryots here, instead of cutting a few inches above the root, as is done in other places, cut as close to the root as possible, thinking that they lose so much in weight if they cut a few inches higher. The jute plant, if cut in flower, will yield half of what the produce will be if cut late in the season and in full seed. There are no Bengali mahajuns here.

No. 35.—BHOIRUB CHUNDER DASS, DHOOLI DASS, MEHER NUISHO, MADHUB DASS, RONMAMOOD, NIJI'M KHAN (of Meergunge),—Rungpore, 21st June 1873.

I, Bhoirub Chunder Dass, am a jotedar. My under-tenants grow jute on 15 dones. I, Dhooli Dass, am also a jotedar and my under-tenants grow jute on 7 dones. I, Meher Nuisho, cultivate 2 dones with jute. I, Madhub Dass, cultivate a little above a done with jute. I, Ronmamood, cultivate 1½ done. We have this season cultivated the same quantity of land, as in the year before. Several ryots in our villages have reduced their cultivation, so that if all goes on well, the crops this year-will be four-annas less than in the past season.

We grow both the aus and hemunt jute as also the white and red varieties, called lal pat and dhola pat. The seed-pods of both varieties are round. There is another kind of red jute, the fibre of which has a reddish tinge. It is called mesta, and its seed-pods are elongated. Jute has been cultivated on a large scale within the last 20 or 25 years. Before that time people would

grow it for home consumption.

Meergunge jute generally turns out to be full of bark, (kaishta) because we cannot cut the plants in time, being engaged with the paddy crop. Besides the plants cut in flower do not yield a large quantity of fibre. We cut in seed and many people cut when the seeds are almost ripe. Hence the fibre becomes woody. Besides when these plants are cut (in the months of Aswina and Kartika) the water in bheels, &c., almost dries up, and the stalks do not properly rot. Plants cut in seed are steeped for 25 to 30 days. The soil of jute land here is not very good, containing a larger proportion of sand than clay.

Jute land close to our home-steads is manured with cow-dung and ashes, but the land far off is,

as a rule, not so manured.

Jute is an exhausting crop to the soil, and we do not sow it on the same land for more than two years running. In the second year we grow aus paddy, and on the third or fourth year jute is again cultivated.

Last season jute sold at Rs. 2 and 1-12 the maund. Later on the market fell and it sold at Rs. 1-8. It is now selling at Rs. 1-7 the maund.

About two-annas of last year's crop remains unsold. We got from two to three maunds of fibre per each done last season.

Good doasla land well manured will yield 33 maunds of fibre per done.

We sell jute to the Oswal traders of Meergunge. The weight is of 90 siccas to the seer.

The aus sowings are made in Chaitra on the low lands, and the later sowings in Vaisakha on the high lands.

If the land be low (joli), the seeds are sown without rain but not the high lands. There is no

special rate of rent for jute land.

It costs us Rs. 5 or thereabouts to grow jute on a done of land. We, however, work with our own hand and our own ploughs. It the market rises we intend extending jute cultivation next year.

We do not use oil-cake as manure.

We place the tops of jute plants and clods of earth upon steeping bundles of stalks, and separate the fibre from the root-end by jerks in the water.

We wash the fibre in the water in which the stalks have been steeped. We then feel the want of water.

The Teesta is about two miles from Meergunge, and we cannot consequently use it for steeping in.

Low land is cultivated with very little jute, as the plants have to be cut whenever water begins to lodge in the field. Plants allowed to stand in accumulation of water yield fibre full of roots.

The tillage of jute land which is manured in Magha with cow-dung by the females of the family commences in Aughran.

We do not grow jute under advances. After cutting the plant is steeped at once; but some people who cannot afford to do so, keep the stalk standing for a day or two.

No. 36.—Megh Raj Baboo, Agent of Teekun Chund Mokoon Chund (of Serajgunge),—Pubna, 20th May 1873.

My firm deals largely in jute, and has done so for the last twenty years. We buy and sell some seventy or eighty thousand maunds of jute annually; we also buy and sell jute on commission, which is one per cent. in the case of parties taking advances from my firm. These parties, however, from whom we receive this commission are all our countrymen, who with our money go about from place to place and buy up jute and sell it through my firm. Such parties cannot make use of any other firms in effecting a sale of their commodity. Besides this commission they have to pay the firm advancing the money, nine per cent. interest on the amount advanced. Our business has increased during the last five or six years. There are twenty other firms like ours at Serajgunge. We receive nothing from the purchasers. There are besides our countrymen, Hindoos and Mussulmans, who either under advances or without any advances sell jute through our firm, and we charge such men commission at the rate of two annas per maund and in cases of unusually large sales one and a half annas, and at times for retail sales three annas. I

estimate the money annually advanced to the jute purchasers by the several firms of Serajgunge at sixteen to twenty lakhs of rupees. Most of our countrymen receiving advances go to the districts of Rungpore, Goalpara, Bogra, Mymensing, &c., for jute. Jute that comes from Bullorampore. Gouripore, Kansharoo, Kankripara, Bilashipara, Backserhaut, Cooch Behar, Demageori, is the best. The medium quality comes from Sholemari. Singmari, Neshbitgunge, Noonkhaoa, Bhoosikhansma, Patamari, Jatrapoor, Nagessori, Bhotemari, Chilmari, Kankina, &c. Cooch Behar has been supplying jute for the last three or four years only. Jute produced in 1277 and 1278 B. S. was really very good, but it was not so in 1279 B. S., when a larger quantity of inferior jute came to the market. This is owing to the rainfall not being plentiful at the time the fibre was washed. With the exception of Bilashipara, Kansharoo, Gouripore, and Cooch Behar, jute imported from other places in the north was inferior. Inferior jute generally comes from Churabhandar, Baora, Ghoramara, Kishoregunge, Boorirhaut, Caoney, Meergunge, Nowbabgunge, Kamarjani, Kaligunge, Tebrigunge, &c. All these places grow what we call northern jute. There is another kind of jute imported to Serajgunge called Churooa. It comes from Mowrerchur, Muthoorapara, Chokarchur, Dewangunge, Badiabaj, Islampore, Simooltora, Jharkata, Pingna, &c. This is of medium quality, and is better than what is called deswal jute. It is the fibre of plants mostly grown on chur lands. The other kind of jute brought for sale is the deswal grown at Shealkole, Doalia, Koijoori, Shajadpore, Bhodorepara, Chowbelia, Betkandi, Toolshigunge, Neemgatchia, Pangasia, &c. There is another kind of jute called Beelan, which comes from Rajshahye and is grown at Chalan Calan bheel. The largest quantity received at Seraj-gunge is the northern jute. The prices ruling at Serajgunge are as follows:-

| Hest nothern jute ... at Rs. 3-4, S-6, Medium northern jute ... , 2-12, 8-2, Inferior do do. Best Churooa jute ... , 1-10, 2-2, do. Medium and inferior , 1-14, 2-4 do. Desval jute ... , 1-10, 2-2, do. Boelam do. ... , 2-4, 2-6, do.

The weights, at which jute is bought in the interior, vary from 60 to 90 sicca weights to the seer. Here it is sold by the seer of 84 tolahs and 10 annas. The purchaser at Serajgunge gets half a seer to each drum weighing about a maund. This is called in this part of the country dholta (brokerage). Besides this, there is generally an overweight allowed to the extent of another half scer. Independently of these allowances, the seller has to give to the crew of the buyer's boat five seers in every hundred maunds, and the same quantity is given to the men of the brokers' boat, and if the buyer happens to be an oswal or a man of Bickaneer, he gets 10 seers over, and above 100 maunds from the Bengali seller. From his own countrymen he takes only five seers. other purchasers except oswals are entitled to this allowance. At Serajgunge jute is bought and sold on the boats, the fibre is landed to be made up into drums, and it is then that the article is examined by the purchaser. If it turns out to be inferior to the sample, the buyers, sellers, and brokers meet, and reduce the price according to the quality of the fibre. If they cannot agree, they refer it to a punchayet. The making of each drum costs four to six pice paid by the seller. The buyer's boatmen generally weigh the jute and get five seers, as already stated. The value of jute purchased has to be paid down on the 20th day after the purchase.

No. 37.—DWARKA NATH BHOOEA (of Cagmari),— Pubna, 1st May 1873.

I am a broker of jute, and represent the firm of Addyta and Bhooban Paul. I have been a jute broker for the last 10 years. I do business at Serajgunge. We sell jute for others, we do not buy any; we charge brokerage at the rate of two annas per maund. Annually my firm sells about 30 to 40 thousand maunds of jute. We make advances to jute dealers, locally called beparies, who go to different places, buy up jute, and bring it to Serajgunge, where we sell it for them. We do not charge any interest. Our commission is paid by the sellers. We also sell for other beparies, who do not receive any advance. They too pay two annas per maund. My boatmen get five seers of jute for every 100 maunds sold. The boatmen of the purchaser weigh the jute bought. A large quantity of jute comes from the north, i.e., from Rungpore and Goalpara, a small quantity comes from Rajshahye, which we call western jute. The supply from Mymensing goes by the name of eastern jute. Shahajadpore and Koijoori send jute which we call dakhina. We advance annually some Rs. 15,000 to jute beparies. Last season there was a larger quantity of jute in the market here than in any of the previous years. About one-fourth of the northern and eastern jute has still to come to the

We make advances in the months of Jyaishtha and Ashadha; we have not yet begun making them. There are some 35 firms like ours, exclusive of the houses of oswals. The uttariya or fine jute is purchased by Messrs. Ralli Brothers, by Messrs. Wilson and Co., and by Bengalee mahajuns, who send it to Calcutta. The jute company here buy inferior jute for their own use, i.e., for making gunny cloth. Jute is sent to Calcutta by country boats, steamers, and rail, at a cost of four annas by boats, and of 10 annas and upwards by steamers. About 40 lakhs of maunds go out of Serajgunge annually. Last season the imports of superior jute were small in proportion to the import of medium and inferior jute. I estimate the imports of really good jute last year at four annas, and medium and inferior jute 12 annas. The river near Serajgunge is navigable throughout the year. More jute is sent by steamer than by country

The business of buying and selling jute is done in boats, and the prices settled by figures described on the palm of hands; the prices are never spoken out. Jute is weighed on the boats and brought on shore to be made up into drums. The weight by which jute is bought and sold here is 84 tolahs

and 10 annas to the seer. The rent of the riverside land used for making up drums is four annas per 100 maunds paid by the seller. The broker employed by the purchaser gets generally a fee of two pice per maund. The brokers of large firms, such as Ralli Brothers, get four annas per 100 maunds paid by the purchaser. My inquiries lead me to believe that the cultivation of jute this season will be about one-half of what was grown last year. The best jute is now sold for Rs. 2-10 per maund; medium and inferior for Re. 1-10 to 1-12 per maund. In the past season superior jute sold at Rs. 3-10 to 3-14 per maund, and in the season before last at Rs. 5 per maund.

No. 38.—BAUL SHEIK (of Borokandi),—Pubna, 22nd May 1873.

I am a cultivator, and my tenure consists of ten pakis of land, out of which I grew jute on two pakis last seasop. I have this year sown jute on only one paki. I grow boro pat or jute, which is of a white color, the seedpods of which are globular. The joli or low land sowings take place in the month of Falguna, and the plants are cut in the month of Jyaishtha or Ashadha, in fact at any time when the rivers begin to rise, whether they are then fit for the sickle or not. The land upon which I have sown is neither too low nor too high. It is doas land. I sowed the seed in Chaitra last, and the young plants are two to three feet high. I intend cutting them in Srávana next when they are in flower. The jute plants do not run to seed before the month of Kártika. The tilling of jute land commences in the month of Mágha; we plough it seven or eight times, less will not do. The seeds are sown broad cast after the land is moistened by a shower of rain, the ladder is then passed over, and the seeds covered with earth.

In five or six days the seeds germinate, and when the plants are fourteen or fifteen inches high, we weed out grass. When the plants grow up to a height of four feet there is another weeding, and the ill-grown plants are pulled up and thrown away. When the plants are six feet high, they are cut. I have seen plants as high as eleven or twelve feet. The plants are cut with a bill-hook close to the ground, tied up into bundles, and at once steeped in water, clods of earth being placed on them to make them sink. Sometimes the tops are lopped off before steeping. steeping goes on for ten or twelve days, when the plants are ready for the separation of the fibre. This is done by jerks in the water. We make it a point of steeping and washing jute in clear water, for the finer the water the better will be the color. The water is then wrung out and the fibre dried for two or three days. It is then tied up in hanks and sold to the paikars who go to our houses and buy it up. I do not grow jute under advances.

We hold the stalks by their root-end, break them above one foot, and separate the fibre by repeated jerks in the water. I wash the fibre in the same water in which it has been steeped. As a rule, we work on the fields ourselves, but growing jute on a paki of land with hired labor costs Rs. 6 to 7:—

	Rs	. A.	P
Seven ploughings or 14			
ploughs and ladders	1	12	0
Rent	1	2	0
Two weedings	2	0	0
Cutting	3	0	0
Steeping, &c	0	8	0
Separating and drying	1	8	0
Total	7	14	0

We keep in each field a few plants for the seeds. We do not manure land for jute, which is an exhausting crop and is rotated with early paddy. It requires about four seers of seed for a paki of land. I got eleven maunds of fibre last season, and after keeping about half a maund for home use I sold the remainder for Rs. 12. The market last season was very dull. I grew the deswal jute. In the season before last jute was sold in our village at Rs. 4 per maund. The weight by which we sell jute is the seer of 84 tolahs and 10 annas. There are three kinds of cultivations in our part of the country. The joli or low-land cultivation, the moddhum or cultivation on land neither very high nor very low, and the namla, i. e., cultivation on high land. Low-land sowings are done in Fálguna; the moddhum in Chaitra, and the namla in Vaisakha. I have seen jute plants with long seed-pods, but they are not grown in our part of the country. Ours is all white pdt with globose seeds. Mechut is also grown here in limited quantities. There is no sunn cultivation here. Jute grows best on matial land.

Over-steeping makes the fibre weak; understeeping makes it woody, locally called kaishta. I sow mustard on jute land in winter. As a rule, jute land is not manured in our quarter. Jute will grow on one and the same plot of ground for two or three years running, but the yield year after year will be less by two-annas each year. In the month of Kartika, the plants kept for seed are cut. The tops are lopped off and dried for three or four days, and afterwards stored. We do not moisten the seed before sowing. Seeds are sold by the maund, and the value is from Rs. 2 to 5. Alternate showers and sunshine favor the growth of jute plants. Excessive rain does not give a large yield. Drought stunts the growth of jute. Beechas make their appearance once in every three or four years in about the hot months, and attack and partly destroy jute plants. In our neighbourhood, kopalees manufacture gunny bags and sell at the hats, where they are bought for local use. Jute cultivation has been of late on the increase, but this year it will be reduced to about one-half, owing to the loss sustained by the growers last season from the fall of prices. There is a kind of insect which looks like the white-ant that sucks the just plant and causes the black specks which are not unoften seen on the fibre. The plants become rooty, if they stand in water for any time. Last season, some of the ryots abandoned their jute

on the field. The leaves of the white jute are used as a pot-herb. Some ryots tried the cultivation of red jute sometime ago, but it was a failure.

No. 39.—Rohim Pohamanick (of Lushkurpoor), Pubna, 23rd May 1873.

I am an agricultural ryot and I cultivate one and a half khedda of land; one khedda being equal to 16 pakis. I have been growing jute for the last. four years. I grow two kinds, riz., dhola pat and nalita pât. I also grow a little of mesta. In the first year I commenced with one and a half paki, in the second year, two pakis, and two and a half pakis in the third year. I have grown jute this season on two and half pakis, I would have increased the cultivation, but the market last season was very low, and I have grown nalita pat on only half a paki. The seed-pods of this variety are elongated, while those of the dhola are globular. The nalita stalk is red, and the leaves have red veins. The dhola stalk is white, and the leaves of a light-green color. The fibre of the nalita is of grey color and longer than dhola; that of white jute is of better quality. The yield of the last season was twelve maunds, being the produce of only one and a half paki. The rest abandoned on the field, and subsequently used the plants in walling my house, the market being low. I could not think of wasting my time and labor in cutting the plants. I grew mesta on one-fourth of a paki and I got about ten seers of fibre, which I sold to the paper-makers at Serajgunge at the rate of Rs. 5 per maund. I sold both nalita and dhola jute mixed up together for Rs. 3 per maund in the beginning of last season. The price after that time fell, and the same kind was sold for Rs. 2 and Re. 1-12. The land upon which I grow is chur land, flooded annually. I do not as a rule manure the land. The deposit of silt left by the flood, acts as manure. I grow jute on one and the same land for two years running. Aus paddy is rotated with jute. Matial land, high and well manured with cow-dung, is favorable to the cultivation. In case of rich soil well manured, the yield of fibre is about nine maunds. As a rule, the growers have reduced their cultivation by sixannas. The commercial designation of jute grown by me and my neighbours is deswal pat. My house is about eight miles from Serajgunge. Every ryot in our part of the district grows jute, the cultivation of which, for home use, has been carried on from time immemorial. It has been cultivated as an article of commerce for the last 25 years or so. The cost of producing jute on a paki of land is about nine or ten Rupees, viz. :-

	:	Rs.	A.	P.
Seven ploughings or fourteen ploughs, at six ploughs per rupee Two weedings, twenty men at six per rupee Cutting the plants and removing Separating fibre and washing, ten men Drying and bundling up, four men Rent of land	•••	3 0 1 0	10 11 11	6 6 9 0 0
(Coto)	•	-	7	9

I have ploughs, and my people work on the fields, though occasionally I hire labor, when there is pressure of business. In the month of Aughran, we commence tilling land for jute. In the cold season, we grow kulai or sursoo on jute land, cutting the crop in Falguna. The land is again ploughed up well, and jute seeds are sown in Vaisákha. We sow seeds in Falguna on low lands where there is an apprehension of flood. The Vaisakha sowings are generally on high lands; we do not grow kulai or mustard on low jute lands. At the latter end of Ashádha and the beginning of Sravana, the Falguna plants are cut. Those of Vaisákha from Bhadra to Kartika. Two and a half seers of seeds suffice for a paki of land, and in case of early sowings we do not wait for rainfall. The Vaisakha sowings take place after a shower of rain. In three or four days the seeds germinate, and when the plants are about six inches high, the first weeding takes place. When they are three feet high, there is another weeding, and bad plants are pulled out, and the field thinned. The plants are cut when in flower, we leave ill-grown plants for seed. These plants are cut in Kartika and Aughran. The seeds are dried for three days and stored up. We do not buy and sell seeds; they are sold in some hats. We give away seeds gratis; we exchange labor which is called ganta; we also exchange ploughs. The system of burga means this-the land is mine, and I have to pay the rent and provide for the seeds, but another cultivates it at his own expence. The produce is equally divided. After the plants are cut, they are at once laid in stagnant water and kept there, the early plants for eight or ten days, and the Vaisakha plants for fifteen or twenty days. We then separate the fibre by repeated shakes and jerks in water from the root-end; the fibre is afterwards washed in clear water, dried for two days, and tied up in hanks. Sometimes the paikars come to our doors and purchase the fibre; at other times we sell it in market. We sell it for cash; we do not grow jute under advances. Bad water imparts a bad color to the fibre; over-steeping weakens and discolors fibre, and under-steeping makes it woody. The depredations of beechas are most damaging to the jute plants. Hailstones destroy jute. There is no particular season for the appearance of the beecha. Alternate rain and sunshine favor the growth of jute plants. Too much rain stunts their growth. Too much drought kills the plants. Jute is an exhausting crop. The second year's yield is one-eighth to one-fourth less than that of the first year. Mesta is grown on high land, and the seeds are sown in Vaisakha. Sunn is grown in very small quantities by the fishermen for nets. Jute fibre is generally deteriorating. Last year was a bad year; the evil lies in the accumulation of water at the root, which makes the plants rooty. The black specks so often seen even in otherwise good fibres, are caused by the fall of hailstones on young plants, and by their striking against each other in a gale. Each grower keeps a little jute for home consumption. I kept one and a half maund for home consumption last season. The weight by which

jute is sold is 84 tolahs and 10 annas to the seer. Gunny-bags are not made in our village. White jute is more largely grown here than red.

No. 40.—Mr. Thornton (of Naraingunge),— Dacca, 23rd April 1873.

The quality of jute last year was much worse than the year previous. The season 1871 was very good. The quality has been gradually deteriorating. The outturn of the season 1872 was about thirty per cent. more than in 1871. In the season 1871-72, the boats of the country were pressed into the Government service for the Lushai Expedition. This blocked up the jute. The Calcutta market rose as high as Rs. 4-4 for good fibre about March. This was about sowing time, and the high prices induced the ryots to sow an immense amount of land with jute, so much so that they were quite unable to manage the manipulation, hence the deterioration.

I think they are sowing much less, possibly 6 to 8-annas less. The average price has been about Rs. 2-2 this season. The ryots say 12 to 14 annas a maund covers the growers' outlay. The seed for sowing is taken from the plants outside the field, that is, from the stunted plants which will not yield fibre good enough for the market. Jute comes to this mart from the banks of the Luckea, Tipperah, Burrisaul, and Sylhet, probably as high up as Ashmanigunge; very good jute comes from Bhawal, but the water there is very bad. Jute is soaked in running water. I think the mud put on the jute to sink it, spoils the color.

The grower takes his jute to the hat, it then goes into the hands of the beparies who buy at an average price without making a selection.

Another way is, the head man or some responsible man collects the jute from the growers and ships it or takes it to Naraingunge, &c.; he being under advance to the aratdars, and having in his turn advanced money to the growers. The aratdar sells it to the merchant without letting the bepary know anything about the price. The system of advance is in general use all over the country. The aratdarce commission is 2 annas per maund. The packing of wet jute is a great cause of deterioration; it is brought into the hat in small boats exposed to the weather, and put into the large boats in any state. I know of mette, it grows up the Luckea in small quantities; it is a woolly reddish fibre, and would probably not spin well. I also know dhenros, its fibre is very brittle; it is generally sold separately from jute.

Mesta is sold and mixed with jute. I only know of three descriptions of jute proper, Backrabad, Bhatial (this grows to the south of Naraingunge), and Mymensing (northern). Of the last named jute, there are several descriptions. The Bhatial is sown earliest, and is now six inches high; next is Backrabad now sowing, and last the northern jute. My idea is that the best jute fibre is about ten feet long, thick, soft, and silky, and of a bright golden color. Jute-growing has increased the wealth of the population immensely. I do not think rice is such a safe crop as jute, which is less liable to damage.

No. 41.— Baboo Madan Mohun Bysack (of Dacca),—Dacca, 24th April 1873.

I am engaged in the jute trade. I buy at Naraingunge, Kaligunge, and Bhawal. The best jute comes from Bhawal.

Good jute must be lengthy, soft, shining, strong,

and whitish or yellowish.

The cultivation of jute has largely increased of

late owing to the demand.

About eight or nine years ago, jute was a large article of trade. The cultivators do not grow jute under advances. But the beparies take advances from the aratdars. Jute cultivation has improved the state of the lower classes. Jute is here known by the following names:—"bhawal," "backrabadi," and "bhatial;" bhatial grows to the south on the banks of the Ganges, backrabadi on the east of the Megna, bhawal to the north of Dacca.

Jute land is manured with cow-dung. The plant is cut when in blossoms, not when in seed, as in the latter case, the fibre will be coarser. Immediately after being cut, the plants are steeped. They are not stacked in the field for a day or two. If possible seeds for next year's sowing are taken from the best and most healthy plants.

Jute is steeped mostly in stagnant water, and also in the khale. I suppose running water would improve the quality. I cannot say in which it

would rot quickest.

If left too long in water the fibre would be soft and weak. Jute grows on both high land and low land; the former is the best. Jute was largely cultivated on indigo land and did well. I hear one-eighth of the produce is still in the hands of the growers. Less land will be under cultivation with jute this year, but it is impossible to say to what extent. I know of other fibres, mesta and dhenros. Sometimes these are sold and mixed with jute; mesta is generally used for papermaking.

Dhenros is grey and not strong; it comes in small quantities. It is used for making ropes. I know dhunchia, it does not come to this market.

The cultivators sell their jute all in one lump, either in the house or in the hat. The merchants, i.e., shippers for the Calcutta market, who buy through the aratdars, buy on sample and assort the qualities; they generally put inferior quality inside the drums.

I suppose jute could be improved by careful cultivation, manuring, &c. The demand for fine quality is increasing, and for the reason that so little is produced. Jute has deteriorated, because it has been grown on poor land, and carelessly prepared, and because the cultivators could not cope with the work for want of labor.

No. 42.—Mr. M. A. GEORGE (of Dacca),— Dacca, 24th April 1873.

I was in the jute business in 1867-68, and have been again for the last two years. I do not find that jute has deteriorated, indeed this year, I think, it is, if anything better, but it varies in different districts.

Perhaps one-sixteenth of last year's jute remains in the hands of the growers unsold. The average price of this year has been about Rs. 2 per maund. Last season it was about Rs. 3-8. During the past season, the outturn of jute was probably 25 per cent. larger than last year.

The best jute comes from Kurimgunge, Aralia, Bhawal (from this place the jute was not so good this year, as there was so much that the ryots had not time to manipulate it, and indeed much was left in the ground uncut), Backrabadi (this jute was also weak this season), and Poobali. The jute from all these places comes to Naraingunge. Bhyrubbazar jute is very good. I think all jute

comes from one kind of plant.

The growers do not take advances from the dealers; the poor ryots may, at times, take advances from the zemindars. The dealers take advances from the aratdars, in consideration of which they have to pay 2 to 4 annas per maund. The rate depends on the profit made; 2 annas is the correct charge. There is no guarantee for the fidelity of the beparies. Jute is cut when in flower; if cut later, it becomes hard and rooty. The plant is soaked in stagnant dirty water; it will not rot so soon in running water or in clean water. Very dirty water discolors the fibre. If soaked in clean water, the fibre would, doubtless, be improved, but it would take a much longer time to rot.

In Naraingunge, I buy through the aratdars; adulteration of jute is universally practised, as bad jute is mixed with the good inside the bundle. I buy here and in Naraingunge on sample. The same districts supply this place as Naraingunge, but here I buy direct from the dealers who thus save aratdaree. The expense of sending jute to Calcutta is 4 to 10 annas per maund by country I know of the following fibre-yielding plants:—mesta, dhenros, bura chucker or moorva, and rajjuat. The natives will certainly sow much less than last year, probably one-third less. In some places there was a loss to the cultivator in growing jute, not only of his labor but of actual cash, for instance in batial. Jute at times sold as low as Re. 1 to 1-2 per maund. Probably jute cost Re. 1-8 per maund to cultivate. The outturn per beegah may be estimated at six to ten maunds according to cultivation.

No. 43.—Anundo Chunder Bagchee (of Naraingunge),—Dacca, 25th April 1873.

My firm is at Naraingunge and deals in jute. I have been in the jute business for the last ten or twelve years. Annually my arat sells thirty to forty thousand maunds of jute. The import of last season was larger than the previous year's. The ryots had received a good price for their jute the year before, and this induced them to extend their cultivation; but the market fell, and to my knowledge a number of growers suffered loss. The price of jute the year before was up to Rs. 4-12; the highest price realized this year was Rs. 2-8, and on rare occasions Ra. 2-12. Inferior kinds of jute sold for Re. 1-2 and even Re. 1 the maund. Jute imported to Naraingunge is from

Bhatial, Noakhally, and Burrisaul, from Mymensing (Boorirhat), Shumboogunge, Porabari, Goojurdia, from Backrabad, Singrapore, Sorail, Kurim-gunge, Rajaghat, &c. The beparies, who are under advances to us, bring their jute to our arat for sale, and we sell it to the shippers, charging a commission of half anna to six annas on each maund, payable by the sellers. We have to pay out of this commission one pice in the maund to the brokers, through whom these sales are effected. The beparies get their advances from us in the month of Ashadha. They give no security for the amount advanced, nor do they execute a bond. The loan is simply entered in our books; we advance from Rs. 25 to 1,000 to each bepary. As the jute is sold, the beparies pay us. Interest at the rate of 18 per cent. is sometimes charged upon the money advanced in addition to the commission. Those beparies who do not take advances have to pay the same commission as those who do. My firm does not send jute to Calcutta. The quality of the fibre is gradually deteriorating, and last year the Backrabadi jute, which is generally good, turned out to be inferior. The causes of this deterioration are poor soil and extended cultivation. I am aware of ryots actually abandoning their fields of jute. Last season, jute was not profitable to the growers, as the market was very low. . I do not know the cost of cultivation; but on inquiring into the cause of ryots' abandoning their jute, they all said it would not pay them to cut the plants and prepare the fibre. The best fibre that comes to this mart is from Kurimgunge and Boorirhat.

No. 44,—Mr. R. G. Buist, Agent of Mr. H. Cox (of Naraingunge),—Dacca, 25th April 1873.

I have been in the jute business since 1866, and working in Dundee up to 1869, when I came out to India. I have been at Naraingunge five months. As a rule, I purchase jute through the aratdars, but occasionally I get beparies to sell it to me direct. There has been no really fine jute at Naraingunge this year, and the price of the best procurable has been Rs. 2-10 per maund. The Kaligunge jute is generally very good, but this year it has been a complete failure owing to its being steeped too long. The aratdars agree in attributing this to want of labor. The bhawal jute has been fair, but the backrabadi has not been so good this year as in other seasons. I bought some very good parcels of Kurimgunge jute. The cultivation of jute last year was larger than in any previous years, so much so that it is believed that one-eighth of the crop is yet to come to the market. My inquiries also lead me to believe that, owing to the immense quantity sown last year and the want of labor, fields of jute have been left uncut and allowed to rot. I myself saw this state of things on the banks of the Megna. I buy jute at Naraingunge in moras or skeins, and, after picking out the very low stuff, drum it. At present there is a demand for fine quality of jute, because this year's produce has been only

good, medium, and low. After jute gets into the hands of the manufacturers at home, the bales are opened and re-assorted suitably for various qualities of spinning. A great quantity of jute is used for gunny-bags and for hessians for packing purposes. It is also used very largely for carpets. Eight pounds per ton C. F. and I. enable the paper manufacturers to use the jute cuttings.

The jute imported to Naraingunge this year has been very much below the quality of previous years; the fibre being weaker and the color not

so good.

No. 45.—Doorga Churn Shaw, Arathar (of Kaligunge),—Dacca, 1st May 1873.

From 35,000 to 40,000 maunds of jute passed through our hands last season. Jute comes from Bhawal to this place. Jute grows in all kinds of soil as far as I know. The beparies bring jute to us; they do not take advances from us. Some have their own capital and some borrow from shroffs.

We sell our jute here; we do not send it to Naraingnuge or Calcutta. The purchasers ship direct from here to Calcutta. About a lakh of maunds has gone from here to Calcutta this season. Last season about 80,000 to 90,000 maunds went to Calcutta. The ryots will cultivate much less this year probably one-half to one-third less. This continual rain we are having now is against sowing, as it will rot the seeds. Sowing has been completed to a small extent.

The jute is now above ground. The jute is in long hanks when it passes through our hands. The buyer (mahajun) makes up the drum; it costs Rs. 4-4 to Rs. 5 for making up 100 drums. Some of the beparies take the jute down to Naraingunge. It goes from here direct in boats to Calcutta at a cost of 12 to 14 annas a maund. It cost 2 annas per maund to send it to Naraingunge. Bhawal jute is the best that comes here. I produce two samples, one grey and quite rotten, the other very nice, having a good color and being fairly strong. About half the outturn was like the former. About one-eighth of the last season's crop is still unsold, so I am told. The importation is brisk from August to December. Some of the last season's jute has been quite abandoned in consequence of the low prices. We charge a commission of two to three pice which is paid by the buyer.

I have often seen the drums being packed, and bad jute placed inside the drums. Gradually the proportion of inferior jute is increasing here, and some say for every 10 maunds of good, 15 maunds of inferior jute comes to market. I think the growers pay less attention to the jute. Jute comes here entirely in boats. The average price here this year is Rs. 2 to Rs. 3; last year it was Rs. 3-8 to Rs. 4-12.

No. 46.—Gooroo Proshad Mookerjee (of Lack-pore),—Dacca, 2nd May 1873.

I have been at this place for the last 45 years doing aratdar's and broker's business. For the last 10 or 12 years I have been buying and selling

jute. About a lakh of maunds of jute is annually imported to this mart by the fureahs who sell it through me and other aratdars to the beparies or mahajuns who come from Dacca, Nagorpore, and Naraingunge, Messrs. David, Thornton, Madan Mohan Bysack and others buy their jute here. We get half an anna per maund by way of commission. Last season about 15,000 maunds of jute passed through my hands. There are other aratdars here; jute comes here from Aralia, Shumboogunge, Bormee, Capaasia, Ekorea, and other places. The Aralia jute is the best. I sold this kind last season at Rs. 2-14 to Rs. 3 the maund. Inferior jute was sold at Rs. 2, 2-6, and Rs. 2-8 per maund. Jute purchased here goes to Dacca, Naraingunge, and Calcutta. I have observed that jute fibre has of late been not so good as formerly. I think the ryots have not been careful in selecting lands and in cultivating jute and preparing the fibre. My impression is that owing to the high price jute fetched in the season before last, the growers about here increased their cultivation fully 50 per cent. over and above the previous year's cultivation. The market of last season, however, fell, and the growers were so much disappointed that many of them actually left the plants uncut in the fields. The people will, it is believed, reduce their cultivation to about one half. Dhalsoonder pat and biddyasoonder pat mostly come here. The former is white and in greater demand than the latter, which is reddish. I know mesta pat; it goes to Chur Sindore for sale. It is an inferior kind of jute. The araidars do not make any advances to the fureahs who go about from village to village collecting jute and bring it to the mart for sale. The fureaks bring the jute in skeins, and those who purchase it from them do so through the commission agent.

No 47.—IBRAHIM SHAIK (of Samoolea),—Dacca, 2nd May 1873.

I am a cultivator holding 14 kanis of land. I have been growing jute for the last 7 or 8 years. I used to cultivate one kani with jute before, but last season I doubled the cultivation and grew the staple on two kanis. I got ten maunds of rather inferior fibre. I had no good water to steep the jute in, hence the inferiority. I sold it to a fureah for Rs. 2. It cost me about Rs. 9 to grow jute on a kani of land, as per following details:—

				Rs.	\mathbf{A} .	P.
	ploughs	, includ	ing			
harre	ws		•••	2	0	0
Weedin	ıg			2	0	0
Cutting	ž		,	1	0	0
Carryin	g to the	water, st	-q99	•		
ing,	separatin	g the fi	bre,			
&c.		• • • • • • • • • • • • • • • • • • • •	•••	3	0	0
Rent	•••	•••	•••	1	14	. 0
		Total	•••	9	14	, 0

Jute is an exhausting crop and unless cow-dung is put upon the land that grows jute, the yield is

small. I grow sursoo and kulai on the jute lands in winter. As a rule, ploughs are not let out in this country; we hire labor for cultivating jute; the hire of labor is from Re. 1 to Rs. 5. In the case of men who have lands, but who have no ploughs or bullocks, the land is let in burgha, i.e., the man who owns ploughs, cultivates the land and gets a 10-anna share of the profit. We have also the changing labor system called hamoroolla, ie., ten or twelve men form into one band and work in the fields alternately without receiving any fee. I grow the white jute called the dholeshury. The red jute, lal nalia, is grown in small quantities. The white plants yield better colored fibre, hence a large cultivation of this jute. We have no other kind of jute in this part of the country. There is no special rate of rent for jute land. Jute does not grow in the land which grows the amun rice crop, for it is low-land and water accumulates in it. Jute grows well on doas land. I will sow jute on only one kani, the price being low. Alls dhan grows on land intended for jute. I have only five kanis of doas land, but only two kanis are really good soil. Ryots who have more lands sometimes make a change in the cultivation.

No. 48.—Kodrutoollah Mollah (of Poalia), Churamoni Pramanick (of Shekpore), Gobind Mandal (of Bhatpara), and Sheik Munee-Rooddeen, Furreedpore,—19th August 1873.

I, Kodrutoollah Mollah, own 20 beegahs of land, of which I have grown jute on two beegahs. A portion of the crop has been harvested and sold. The new jute has been sold at Re. 1 and Re. 1-2 per maund. I am selling the old jute at Re. 1-4 and Re. 1-3 per maund. The old jute is dry,—hence its greater price. The new stuff is moist, and therefore the low price. Last year I raised the jute crop on three beegahs. During the past season, jute was sold by us at 10 annas and 12 annas the maund, and this low price has brought on the reduced cultivation. Others in my village have also reduced the areas of their cultivation. Last year the yield was eight maunds per beegah.

I, Churamoni Pramanick, hold a tenure of 20 beegahs of arable land, a small portion of which, not more than a beegah, has been cultivated with jute. I grew jute last year on three beegahs, but in consequence of the very low market, I abandoned most of the plants on the fields and in the water. Hence the small cultivation this year. The little fibre I prepared was sold for nine pnass the maund. The fibre of this season's crop has not yet been prepared. I got seven maunds per beegah last season.

I, Gobind Mandal, have a jumma of 16 beegahs of land, and I have grown jute on 1½ beegah, instead of 8 beegahs as last year. Last year's jute proved a loss to us, it having been sold at 8 to 10 annas the maund. The yield last year was eight maunds per beegah.

I, Sheik Muneerooddeen, have a holding of 12 beegahs. I have raised jute crop this season on two beegahs. The stalks are being steeped, and I cannot tell what the yield will be. Last year I grew the staple on 11 beegah, and obtained

about 12 maunds of fibre, which I sold at 8 to 11 annas a maund.

We sell jute at the Sydpore Hat, where we take it in small boats, and at home to the paikars who come to us.

We sell by the weight of 60 tolahs to the seer. We do not, as a rule, allow anything over and in excess of the maund, but the buyers take by the weight of 62 tolahs to the seer, and pay us on the calculation of 60 tolahs.

New jute is generally moist, and the buyers accordingly pay a reduced price.

We do not sell new and old jute mixed up

together. We sell in hanks.

In our part of the district, about two annas of last year's jute remains unsold in the hands of the growers. The stock has been withheld in expectation of better prices.

In the season before last, we sold our jute at Rs. 2, 2-4, and 2-6 per maund. Last year the cultivation was the largest, and larger by about six-annas than the previous year.

Jute had been selling at good and paying price

for three years before last year.

Jute has been grown for home use from time immemorial; but the cultivation for sale has been going on for the last eight or nine years.

Jute sold for the price we got for three years before last season, has been more paying than rice.

The drought at the commencement of the season dried up a good many plants upon high lands; the crop on low lands is fair.

We all grow Bogi pat. People about our place do not grow mesta largely. It is light, green stalked jute, and the seed-pods are elongated. The seed-pods of desi jute are round.

Jute grows well on moist doas land, which is annually under water in the month of Srávana. At the present moment jute plants on many fields are standing on knee-deep and thigh-deep water; a few fields are still perfectly dry. The fibre of the latter place is the strongest and the best.

Mesta pat and desi pat grow in this place in bheels. Jute land is not manured in any way; but jute cannot grow for more than two or three years on one and the same piece of land. Jute impoverishes the soil. We sow both early and late paddy. After jute, we grow mustard in winter, and after the removal of this crop, in January and February we plough the field for the next jute crop. We plough the jute land not less than three, nor rather than five times. The paddy is ploughed once, twice, or thrice only.

In the month of Chaitra, a little before the sowings, we turn up the ground with kodalies, and thereby uproot and kill jungly plants. Ploughs cannot uproot jungles so well as kodalies.

Seeds are sown broadcast in all Chaitra and Vaisakha, and sometimes in the early part of Jyaishtha, after a shower of rain. We then draw the ladder (moi) over the seeds, and cover them with earth.

When the plants are balf a cubit high, we harrow the land in order to get rid of the grass.

We cut jute in Ashadha and Sravana, before the plants are in flowers. Plants cut at this stage yield finer fibre than those cut later.

We leave a corner of the fields with ill grown

plants for seeds. These we cut in Kartika.

We apply the sickle to the plants if they are on high lands. If they are in deep water, we pull them up.

We do not lop off the tops, nor cut the root ere steeping, but steep the plants at once in *bheels* and in tanks, and place plantain trees, bits of date trees and clods of earth upon them. In about eight to ten days the steeping is well done, and the fibre is extracted by the hand. It is peeled off from the root-end one by one.

The fibre is then washed in clean water and

dried and tied up in hanks for sale.

Each family generally keep half a maund of

jute for home consumption.

For the last two years, the rain water has been much accumulating in the fields of jute and damaging considerably the plants. The fibre consequently has not been very good. Accumulation of a large quantity of water in the jute field does no good to the plants. This year this has not been the case in our side, and the fibre is better than that of last two years.

We have not got to pay a special rate of rent

for jute lands.

We all work on the field and use our own ploughs.

Otherwise jute does not pay.

Supposing the crop is raised with hired labor and hired ploughs, the cost of cultivation per beegah is—

Six ploughings, &c. 1 8 0 Turning the ground with kodalies. 0 4 0 Harrowing 0 4 0 Weeding expense 1 8 0 Cutting 1 0 0 Separating the fibre, &c. 3 0 0 Rent 2 0 0 Two seers seed 0 4 0	J				Rs.	A.	Ρ.
Turning the ground with kodalies. 0 4 0 Harrowing 0 4 0 Weeding expense 1 8 0 Cutting , 1 0 0 Separating the fibre, &c 3 0 0 Rent 2 0 0 Two seers seed 0 4 0	Six ploughings	, &c.	• •		1	8	0
Harrowing				lies	0	4	0
Weeding expense 1 8 0 Cutting 1 0 0 Separating the fibre, &c. 3 0 0 Rent 2 0 0 Two seers seed 0 4 0			••		_	4	0
Cutting ,,		e			1	8	0
Separating the fibre, &c					1	0	U
Rent		fibre,	&c		8	0	0
		••	• •		2	0	Ü
Total 9 12 0	Two seers seed				0	4	0
Total 9 12 0							
			Total		9	12	0

The black specks on the fibre are due to the joints where the branches shoot forth, also to under-steeping.

No. 49.—Amirooddee and Abbas Khan (of Shaestabad Deora),—Furreedpore, 19th August 1873.

We have been growing jute for a long time; we grow both bogi and deswal pat. In our part of the country deswal predominates; its fibre is better than bogi. We grow jute on does land, being an admixture of sand and clay. The yield per beegah is six to seven maunds of fibre. We have not yet prepared fibre from this season's plants. Others have got the new fibre ready, and is selling at Re. 1-5 and Re. 1-6 per maund. We are selling old jute at Re 1-2 and Re. 1-3 per maund. We sell jute at the markets where the paikars buy it. We sell jute by the weight of 80 tolahs to the seer. The growers in and about this place

have not got last year's jute, but petty dealers have some still unsold. The area of cultivation of jute this season has been reduced by more than half, owing to the low market last year. Last season our jute was sold at 6 as., 7 as., and 8 as. per maund and we suffered loss. Hence this reduced cultivation. The seed-pods of bogi are elongated. Those of deswal are roundish. We do not grow mesta in this part of the district. We do not pull up jute plants, we cut them with a sickle. We grow jute on rather high land, though in other years there is an accumulation of water, when the crop is harvested. This year there is no water. Jute is cut when the plants are getting into flowers, and sometimes before as we wish to avoid the water that accumulates in the fields as much as possible, for the portion of the plant under water rots, and is otherwise injured. The jute land is not in any way manured. We grow jute on the same field for two or three years running, but not longer; we then leave the old fields to dhan (late) and select new sites. Three years after we come back to those fields. The second year's crop is always shorter than that of the first year, and third year's still shorter. We have a small quantity of high land; hence we cannot select a new site every year. Jute does not grow well on very low lands. Jute plants are cut and steeped in stagnant water, and after 15 days or so, the fibre is peeled off from the thick-end one by one. The fibre of desi pat is stronger than that of bogi. Tha fibre of the bogi is longer. The cost of cultivating a beegah with jute and preparing the fibre thereof is as follows:-

		Ks.	Ρ.	
Ploughings		2	8	0
Weeding		2	8	0
Cutting, separating, washing, &	cc.	6	8	0
Rent		2	8	0
Two seers of seed		0	6	0
m 1		1.4		
Total	• •	14	0	U

We cut at the root close to the ground. The above expense is not incurred by those who work themselves on the fields; but by those who work with hired labor and ploughs. Want of good water is the cause of deora jute being of a muddy color. We cannot afford to bring the stalks to the river. We do not grow jute under advances. We do not sell the new and old jute mixed up together.

No. 50.—Shadeck Meer (of Bojidpore) and Shaker Cazee and Feloo Sheik (of Chur Moogoorea),—Backergunge, 21st August 1873.

I, Shadeck Meer, have a cultivation of jute on one beegah of land. I grow sada deswal pat. I have not gathered in the harvest. Last year I had the same amount of cultivation, and obtained eight maunds of fibre, which I sold at Re. 1-4 to Re. 1-8 per maund, at the hat of Gopalgunge to the Madaripore mahajuns.

1, Shaker Cazes, have grown jute on one kani or three beegahs of land. I got 20 maunds of

jute last year, which I sold at Re. 1-15 the maund. This year the crop has not been cut. I, too, have grown desi pdt.

I, Feloo Sheik, raised jute crop last season on three beegahs and got only eight maunds of fibre. I fell ill, and could not attend to the gathering in of the crops and preparation of the fibre. Hence this poor yield. I sold it for 8 annas and 1 rupee the maund. This season I have grown jute on two beegahs of land. The stalks are being steeped. I grow kassila pât.

We do not grow jute under advances; we sell it at hats for cash.

Most people in our village have prepared this season's fibre, and some have already sold it for Rs. 2 per maund. Jute is purchased at the markets by the weight of 82 tolahs and 10 annas to the seer. At Gopalgunge hát nothing is charged by way of rent or tolah, but in Madaripore hát, where we also sell jute, one pice or two pice the maund is charged. About two annas portion of the last year's jute is still in the hands of the growers unsold.

In our part of the district, people grow bogi pat, mesta pat, sooth or desi pat. We know what is nalita pât. It is red-stalked jute, but we don't grow it. The seed-pods of the bogi are elongated, and those of the sooth or desi and nalita are globular. We mostly grow sooth or desi. Boni grows well on high lands; sooth thrives on somewhat low lands. We cannot say what soil suits the nalita. Mesta grows in bheel land. Desi or sooth yields the best fibre. Bogi the next best. Mesta fibre has a fine color and gloss, but the fibre is coarse. We grow jute on clayey soil. A beegah of good doas moist land yields ten maunds of fibre. An average piece yields about three maunds less, and very poor soil's yield is three to four maunds. Jute is an exhaustive crop, and does not grow well for more than two years running on one and the same piece of land. People attempt to grow jute on it even on the third year, but the crop is really poor.

Jute lands are not manured in any way, nor see they as a rule annually flooded. Virgin lands produce the finest jute crop. In the mont of Kartika lands destined for jute are ploughed for winter crops, such as mustard, kulai &c. In Falguna or thereabout, that crop is removed from the fields which are then tilled thrice or four times with ploughs and ladders. We do not turn the ground with kodalies. In the latter part of Chaitra, or the beginning of Vaisakha, seeds are sown after a good shower of rain which moistens the ground. It requires about 21 seers of seeds to sow a beegah of land. The ladder is then passed on, and the seeds thereby covered with earth. When the plants are nearly a cubit high, the grass is weeded out from the fields. One weeding suffices. The plants are cut in flowers in Sravana, Bhadra, and Aswina. Those that cannot afford, cut the plants in seeds; the fibre of such plants turn out to be coarse. We cut the plants close to the ground. We do not pull them up. The people who grow jute on bheel land pull them up. Mesta as a rules is pulled up. We then steep the stalks with tops

and leaves in river water, and in bheel water not less than breast-deep. After 7 to 15 days (the stalks cut in flower rot sooner than those cut in seeds) the fibre is peeled off by the hand from the thick-end one by one. The fibre is then washed in clean water and dried for two or three days. It is then tied up in hanks of five seers each, and in that state sold. Over-steeping leads to the weakening of the fibre and loss of its color; understeeping makes the fibre woody. We attribute the black specks on the fibres to an insufficient steeping in certain points which turn out specky. In this part of the district, the best plants are left for seeds. The seed-pods are removed in Kartika. They are dried and thrashed; the seed-pods are then stored up. Jute is injured by gora pocka and by beechas when young. Gora pockas eat the tops of the young shoots; cattle also eat up the tops of jute plants, but hail-stones break them. Excessive rain and drought are alike injurious to jute crop. Alternate rain and sunshine favor the growth of jute.

Jute cultivation has been carried on for home consumption from time immemorial, but it has increased within the last seven or ten years.

We grow jute on lands formerly given to indigo.

Both aus and amun paddy are grown on lands upon which jute has been grown for two or three years. After two or three years jute is grown again here.

Jute fibre in our part of the country is not deteriorating. Last year we had good jute. This year, on account of the drought, the sowings have been late, and it is feared the fibre will not be good.

The jute cultivation this year has been reduced by six-annas owing to the low prices of last year. Last year's crop was almost double of that of the year previous. Several people last year abandoned their jute, and some burned the stalks without separating the fibre. The jute reed is used as fuel; some sell it. The rates are not known to us. The cost of cultivating a beegah of land with hired labor and ploughs is—

		Total		9	0	0
Separating, &c.	. • • •	•••	•••	1	4	<u> </u>
Cutting, &c.	•••	•••	•••	2	8	0
Weeding		***	• • •	1	0.	0
Rent	,		•••	1	4	0
Ploughing		•••	•••	3	0	0
				Rs.	A.	Ρ.

We, as a rule, work ourselves on the field. A few do with labor hired by the month.

There are a class of men called Kopalies, who manufacture gunny from jute.

The accumulation of some little water in jute field when the plants are pretty high, does not injure the crop.

There is no statal rate of rent for jute land.

Jute, if grown well, pays us better than rice.

No. 51.—Baboo Goluck Chundra Biswas, Agent of Pittambee Sha; Roop Chund Sha, Agent of Brindabun Sha and Gobind Chundra Sha; Kebal Kisto Sha, Agent of Rutton Kisto and Sueroop Chundra Sha; Bhogoban Chundra Sha, Agent of Kisto Kanto and Ram Kanai Sha; and Brojo Mohun Koondoo for self, (of Madaripore),—Backergunge, 21st August 1873.

WE are traders of Madaripore and have been dealing in jute from 7 to 15 years. Formerly our business in jute was not so extensive as it has been from the Bengalee year 1271. We buy jute from the growers and from the fureals. We buy in the hals of Madaripore, Gopalgunge, Borhangunge, and Angaria; and after tying the same up into large hanks of 1 maund 5 seers, to 1 maund 15 seers each, forward them to Calcutta where the aratdars sell them for us, charging commission of 5 pice and 2 pice, on account of payment to the people of the buying firms, for each maund of jute sold. Sometimes the aratdars give us the estimated value of jute consigned to their firms in anticipation of its sale, and when this is done, they charge interest at the rate of 12 per cent. per annum. We do not receive any advances from the aratdars. The jute forwarded from this place is called *Deora Pat*. In days gone by there was a large jute mart at Deora village; now-a-days it is a small place. Still, to this day, all jute sent from the neighbourhood of Deora goes by that name. We buy jute grown in Furreedpore and Backergunge only. We buy mesta pat, bogi pat, and deswal or desi pat. We prefer bogi to other fibres. The fibre thereof is stronger and longer than desi. The desi is woody at root, and not so long as bogi. Mesta has a fine color and gloss, but the fibre is coarse. We do not assort jute but mix up the three kinds together and forward to Calcutta. We send jute there in country boats; each maund costing 5 annas including all expenses. Our boats are not insured. New jute was brought to the market in Sravana last year, and it is being bought by us for Rs. 2-2 to Rs. 2-4 per maund. We buy by the weight of 82 tolahs and 10 annas to the seer. In Calcutta, jute is sold by the weight of 80 tolahs to the seer. The ryots at times of demand bring wet jute to the market. We then buy it at reduced price, dry the jute and tie it up in hanks. Deora jute has not been deteriorating, but owing to the drought in the early part of the season, the fibre is not so good this year as that of last year. Last season in the early part, jute was sold here at Rs. 2-2 the maund, but later on, it fetched 12 to 14 annas only. Jute trade is very brisk in the months of Srávana, Bhádra, Aswina, but this year the sowings have been late and we did not do good work in Sravana. Jute boats go via Koomar river, Khalia Khal, Chunder Bheel, the Mudhoo Muttee. Khoolna, and Soonderbun rivers. Steamers do not stop at our place. After October the boats pass by the Aryalkhal, Fansiatoli Khal, Gournuddee, Bolessur, and the Soonderbuns. We do not send jute to any other place except Calcutta. In other years about two lacs of maunds of jute

are sent to Calcutta from Madaripore, but last year about three lacs of maunds were forwarded. Last year's cultivation was nearly double than that of previous years. This year, the cultivation has been reduced by 10-annas. Last season, the cultivation was so large as to be beyond the control of the growers, some of whom at last abandoned jute on the fields. We are still buying old jute for Re. 1-11 and Re. 1-12 the maund. About 2-annas of last year's fibre is still unsold. We purchase jute for cash. We do not make any advances. We do not lend money to the growers. Jute plants in bheels, and mesta everywhere are pulled up. Upon high lands jute is cut.

No. 52.—ALI MAHOMED MERDHA (of Benodepore);
PANJOO SHEIK (of Hatpara) Sundeep; ASALUT
KHAN (of Nowhata); OMEDALI (of Paloordi);
AND MOOLAM KHAN (of Rajout),—Backergunge,
21st August 1873.

WE all grow jute, each of us cultivating from one to two begans of land with jute. We have grown both mesta and sooth or desi pat. We have already sold new fibre from Rs. 1-12 to Rs. 2-2. In the last hat some of us sold jute at Rs. 2-2 the We have got 5 to 6 maunds of fibre from one beegah of land. Sooth pat grows on somewhat high lands, and mesta grows better on low lands than on high land. We do not grow bogi jute; it grows on high land. We do not manure jute lands; but they are renovated by the flood water which annually covers the same. We grow jute on doas land as well as clayey soil; doas land suits jute the best. The jute plants are in waist-deep water when they are cut. Jute as a rule is cut in flowers, for if cut later, the fibre becomes coarse. Mesta pat is pulled. Jute is cut even if it is in deep water. After cutting we steep the stalks in stagnant water in bundles with leaves. The fibre is then separated by peeling it off the stick from the thick-end. The fibre is afterwards washed in clean and running water, and dried and tied up in skeins. We have all grown less jute this year than last year. The reduction in cultivation in our village has been 12-annas. Last season, the cultivation was greater by 4-annas to 6-annas. Last season we sold jute at 10 and 14 annas per maund; old jute is sold for Re. 1-2 the maund. The fibre of Sooth Pát is fine and strong; that of Mesta, though of good color, is coarse. We sell jute at hats by the weight of 82 tolahs and 10 annus to the seer. It requires 10 seers of mesta seed for sowing a beegah of land, and 2 seers of south pat for that quantity of land. The seedpods of sooth pat are globular, and those of bogi are clongated. In winter, we do not grow any grop upon lands destined for jute; the preparation of the soil commences in Magha, and seeds are sown broadcast in Chaitra and Vaisakha after a shower of rain. In Ashádha, Srávana, and Bhadra, jute plants are cut and pulled up. Jute grows well on one and the same piece of land for two years, but the yield is much smaller on the third year. After which we grow ale and amun rice on that land, and select new grounds for jute. After 3 years we again raise jute crops thereon. We ourselves work in the jute field and use our own ploughs. Those who employ hired labor and ploughs, and buy seeds incur the following expense:—

Ploughing				2	O	0
Weeding grass	•••	•••		2	Ō	Õ
Cutting jute	•••	• • • •		2	0	0
Separating, &c.	•••	***	•••	2	0	0
Rent.	•••	***	•••	2	/ Ø	0
Two seers of seed		•••	•••	0	8	0
•		Total		10	8	0

We plough the jute land, we do not turn it with kodalies. Jute in our part of the country is not deteriorating, but it is not improving. We do not know how to improve the manufacture of fibre.

No. 53.—ZUHBEROODEEN (of Chur Coomar),— Mymensing, 3rd May 1873.

I hold a tenure of 42 kanis out of which I cultivate three kanis with nalia jute. In the ensuing season I shall only cultivate two beegahs. I have sold all the jute that I produced last season. I sold at from Re. 1-8 to Rs. 2-10 per maund. I sold at the latter price at the commencement of the season. I prepared three kinds of fibre; the mahajuns bought all round without reference to quality. My outturn for the season was ten maunds. The three kinds of jute were produced thus—at first water was plentiful and good, and the jute was therefore good, later on water got scarce, and the quality deteriorated. I only sow one kind of seed (dhalsoonder). I sowed 71 seers in three kanis. I cultivate chur land, which I manure with cow-dung. My land was not inundated last year. This year I shall cultivate jute on a different piece of land, on some old indigo land. It does not answer to grow jute for two years on the same soil. Jute is an exhausting crop, als is less so. I have sown seed for this season. I take my seed from the best plants. I cut my jute mostly in Bhadra, and also Aswina and Kartika. I cut according to the supply of water for steeping. I can't steep my jute in the river as it might be washed away. I cut the plants just when the seed-pods appear. The plants were in the proper state for cutting in Bhadra. If I let the seeds ripen, the fibre will be coarse. After cutting, those who can afford steep the bundles at once; those who cannot afford the labor stack it in the field, and take it away gradually. Steeping at once or stacking makes no difference in the quality of the fibre, but if steeped at once the fibre separates easily: when cut at the proper time, it only takes 10 days to steep, but if later, 18 to 20 days.

I take advances from the mahajuna and repay them in jute, mustard, kulai, &c. The mahajun takes my jute without reference to quality. A large on small proportion of good or bad makes no difference in the price. The mahajun sells the jute and reimburses himself. I believe my mahajun suffered a loss this season; last year he made a

good profit. I could have sold my jete in the market at a better price, but I did not like to displease the mahajun, as I have yearly transactions with him. If I grow finer jute I can sell to the fureahs, but only with the sanction of the mahajun. It is difficult to tell with certainty the cost of cultivation, but in round numbers it may be—

7 0. 4				Ra,	A.	Р.
Rent		•••	•••	0	10	0
Six ploughings	•••	414	•••	1	8	0
Two to three harrowing	g8	***	•••	0	8	0
Hand-weeding	•••	***		4	0	0
Cutting		•••		1 :	10	0
Stacking and steeping .	•••	•••	•••	0 1	10	0
Preparing the fibre	• • •	•••		3	0	0
Drying and bundling	•••	• •	•••	1	0	0
v		Total	•••	12 1	14	0

I cultivate myself and hire labor to help me. I lost by my jute cultivation last year. In favorable seasons I get five to six maunds per beegah, Jute is not like rice, which and that pays me. we can eat, and with regard to it we can be independent of dealers and panics in the market. At times rumors are spread at Kaligunge that the trade in jute is stopped, then we get afraid and sell our produce for whatever it fetches. I have cultivated jute almost all my life on a small scale, and largely for the past few years. The price in 1871 induced the people to extend the cultivation. I doubled my cultivation and my neighbours did so also. We reduced the cultivation of paddy.

No. 54.—SHAMAWOOILAH SIRCAR (of Chur Therteccia),—Mymensing, 4th May 1873.

I hold a tenure, containing 64 kanis of land, of which I grew jute on seven kanis last year.

The yield was 27 maunds of fibre which I sold to Mr. David for Rs. 1-8 per maund all round. I grew mettee pat on both chur and barin lands. I did not grow any other kind of jute, but I have sown the seeds of dhaleshur pat this year. The mettee plants are red, and the leaves not of so light green a color as those of dhaleshur jute, the seeds being of a greenish color. Mr. David of Dacca for whom I grow jute does not, as a rule, take any other jute from my village except mettee. I borrow money from that gentleman for the purpose of trading, hence the necessity of cultivating only the variety of jute that suits Mr. David. I manure the land destined for jute with cow-dung in the month of Falguna. The yield is not good when the land is not manured; my land is not flooded during the monsoons; I grow jute with hired labor and the cost is as follows :---

						Rs	. A.	P.
Plough	ing a	kani of	land	•••	•••	5	0	0
Three			•••	•••	•••	5	10	0
Ladder	. , , ,	Ŭ	***	• • •	•••	1	8	0
Harrow		***	•••	***	•••	0	8	0
Pulling	up w	eak plat	nts	•••	•••	0	12	0
Cutting	ban y	steeping	ζ	***	***	2	4	0
	ing A	bre and	drying	***	•••	2	10	0
Tying	•••			•••	•••	0	6	0
Rent	***	•••			•••	0	11.	0
•			1	otal	•••	19	5	0

Last year's crops entailed a loss on me; I have, therefore, reduced my cultivation to five kanis this year, and I intend growing the white jute more largely. I sold in the season before last at Rs. 3-4 per maund. I keep three servants by the year and pay them Rs. 18 each, besides food. These servants not only attend to the cultivation of jute, but to that of ade, and in Sravana and Bhadra to that of winter paddy. They also attend my domestic work. Sometimes when pressed for domestic work. Sometimes when pressed for work I employ extra labor. Dhaleshur aus is more in demand and more valuable than the mettee. I repay Mr. David in jute; he does not charge me interest. Jute, though an expensive crop, is somewhat more profitable than ads rice. The land I hold does not suit the late rice crop well. I also buy jute from the villagers. I purchased some 5,000 maunds of mettee for Mr. David; I purchased it at Re. 1-8 per maund, and sold it for Re. 1-10. We use the leaves of both mettee and white jute as a pot-herb. The mettee leaves are far more tasty than the dhaleshur. Mr. David's Baboo purchased last season about 25,000 maunds of mettee pdt from our village and from the neighbouring villages. I steep jute in a lagoon of the Brahmaputra, and keep it there for 12 to 14 days; I then hold the plant in my left hand and peel off the bark or fibre by the right hand. Two days' drying is quite enough for the jute. If the beechas attack the plants, the fibre gets specky. I steep the plants as soon as I cut them. In this way I get good fibre. I peel off the fibre from the root-end. Jute is an exhausting crop, and unless we manure the land well, it will not produce good crops for two years successively. People therefore generally try to get new land annually, and never cultivate jute on the same ground for more than two or three years successively.

No. 55.—Hosein Sheik (of Beroe),—Mymensing, 5th May 1873.

I am a cultivator by profession. My tenure consists of 14 kanis of land, upon which I grow alls and amun rice, jute, sursoo, and kulai. I grow jute, su. soo, and kulai on one and the same land. A portion near my homestead is manured with cow-dung. The parcel that lies at some distance is not so manured, for I cannot afford to carry the manure so far from home. I do not work on the fields myself, but my brother and my servants do. I grew jute on two kanis of land last year, and got 8 maunds of mettee and dhaleshur pat. I grew half of the one and half of the other on these two kanis. I let half a kani in bhag, i.e., the man who had the bhag, had the growing of the crop, and he gave me half the produce. I sold mettee pat at Re. 1-1 per maund at Dutt's Bazar to a fureah. The white jute was sold in the same way at Re. 1-10 maund. In Vaisakha, after a shower of rain, we sow the jute seeds and cut the plants in Bhadra. The reaping is commenced when the plants are in flower; that is the proper time for cutting, in as much as the fibre obtained from such plants is generally very fine. I stack

the plants on the fields for two or three days for the purpose of hardening the fibre. I steep the jute in my own tank for 10 or 12 days, when I peel off the bark from the root-end. I grow jute on high doas land, which is used in growing ads rice. The cost of cultivation per kani is as follows:—

	Rs. A. P.				
Eight ploughings or sixteen					
ploughs, including ladder					
once after each plough	4	0	0		
Three barrows	0	12	0		
Three weedings—					
First weeding, 16 men	3	0	0		
Second ,, 10 ,,	1	14	0		
Third ,, 8 ,,	1	8	0		
Picking and pulling out					
weak plants, 6 men	1	2	0.		
Cutting, 8 men	1	8	0		
Removing to tank, 4 men	0	12	0		
Separating the fibre, 6 men	1	2	0		
Drying and tying, 3 men	0	9	Ŏ		
Rent	0	12	2		
Total	16	15	2		

Last year the crop entailed a loss on me. I have sown jute seeds on about a kani of land this season. I employ laborers both by the year and by the month. I do not grow jute under advances. I have all cultivation. The men attend to both crops. I sow sursoo on jute lands. I have been cultivating jute these 3 years, and have been growing the crop all along on one and the same land. Jute is an exhausting crop. I manure the jute land in Vaisákha. I have seen jute grow on low lands, but the water which naturally accumulates there has to be drained off. There is no special rate of rent for jute lands. The ads land rate is the rate as regards the jute lands. It does not pay to grow jute, now the market has gone down so much; I have therefore reduced the cultivation. My neighbours are doing the same. The beechas destroy the plants when the weather is cloudy, but not rainy.

No. 56.—Sheik Manoollah (of Chur Bissonathpore),—Mymensiny, 5th May 1873.

I am a cultivator, and cultivate 20 kanis of land with als paddy, jute, and mustard. season I grew the nalia (jute) crop on 5 kanis of land and got 29 maunds of dhaleshur fibre, which I have sold at Re. 1-2 and Re. 1-8 the maund, partly to itinerant traders and partly to the fureaks in the hat. In the month of Kartika I was offered Rs. 2 the maund, but I would not sell it then in expectation of a higher price. I was disappointed, for the market fell and the price went down. grow jute on chur land, which I annually manure for that crop. It is not necessary to manure the land destined for alls dhan. I grow what is called here alls pat. I sow the seeds in Vaisakha, and cut in Aswina when the plants are in flower. My other occupations, however, do not allow me to finish the cutting in that month. I reap a portion

of the crop in Kartika, and then the plants run to seed. The fibre is finer and whiter if the plants are cut when in flower. It is coarse and greyish if cut when in seed. I steep the plants in the water of the Brahmaputra. The fibre of plants cut in flower separates in 10 or 12 days, that of plants reaped in seed after 17 or 18 days' steeping. Stagnant water rots the plants quicker than running and clear water. I have sown for the coming season on three kanis of land. I would have grown nalia on five kanis, but the landlord stood in the way, and demanded enhanced rent. As a rule I do not grow jute on one and the same land year after year. Jute being an exhausting crop, I try to get new lands yearly, and come back to the old land every second or third year.

to the old land every second or third year.

I and my family work on the fields, and very seldom do I employ hired labor. It costs me about Rs. 9 to grow a crop of jute on a kani of land. The following are the details:—

	Rs.	A.	P.
Rent of one kani of land	0	8	0.
Ten ploughings and passing			
the ladder	2	8	0
Two harrows	0	8	0
Two weedings (once the grass is			
weeded and at another time bad			
plants are pulled up), 16 men	2	0	0
Cutting and removing, 10 men	1	14	0
Separating fibre, 9 men	1	11	U
Drying and tying, 4 men	0	12	U
m1	_	10	
Total	y	13	V

Sometimes I employ hired labor and each man costs me 3 annas per day. I stack the plants in the field for a day or two. The exposure brings on the decomposition sooner. I separate the fibre by peeling it off from the root-end. In other years I made something out of the nalia crop, but not so last season. I grow mustard in winter on the jute land. Jute has been a profitable crop except last season. I cultivated jute on four kanis of land in 1278, and sold the fibre for Rs. 72; the yield was 24 maunds. In my village the ryots will cultivate less jute than last year. No mesta or mettee pdt is grown in my village. In the month of Jyaishthá and Ashádha, if no rain falls, a kind of insect called beecha eats up the young shoots and leaves, and to some extent destroys the trees. Fall of rain remedies this evil. Flat doas land is the best soil for jute. Too much rain stunts the growth of jute, moderate showers and sunshine help its growth. It is easier to plough the doas chur lands than the bari lands.

No. 57.—Mahomed Jan (of Kurimgunge),— Mymensing, 6th May 1873.

I have been in the jute trade for 85 years in Kurimgunge. The exports from this place were about 60,000 maunds; more would be sold, but the river Nursunder, on which the bazar is situated, closes up in November. The jute is then taken to a village, called Kajla, which stands on the same river lower down, where there is water

carriage all the year round. The principal villages which supply what is called Kurimgunge jute are Nowgong, Sakooa, Kusardeea, Panchcahonea, Doobree, Goaldiggee, Hatkoliha, Cherang, Singpore, Kagree, Simoobank, Komlochock, and others. within a radius of upwards of a day's journey, say 30 miles, and even from the western border of Sylhet. The villages are generally situated on the sides of the rivers Megns, Dhunoo, Nursunder, and Goracotta. The jute is usually brought in boats carrying 50 to 100 maunds each by the fureahs, who are themselves the boat-owners and manjees. It is never brought on carts or hackeries. The jute is not sold in the boats; it is removed to our godown. The jute is brought in morahs and latcheas. I buy the jute for Mr. David of Dacca, and Baboos Shuntaram Shaha and Bhurut Shaha, who live at Shabar, in the sub-division of Manickgunge, zillah Dacca. These last-named take the jute direct to Calcutta. Afterwards their agents make it up into drums. The cost from Kurimgunge to Calcutta is Rs. 35 to Rs. 50 per 100 maunds. I also sell to itinerant traders. Nursunder dries up in two or three places; a length of about two miles is dried up near Kurim-gunge and at other places also. It would be of advantage were the river opened out; it would require three to four feet to float the boats.

From Kajla the jute goes vid the Nursunder into the Dhunno river. The same description of jute goes from Kajla as from Kurimgunge, and probably about 22,000 maunds. Even after the river is closed at Kurimgunge small quantities come in on hât days, which is brought by the natives in small boats. (Kurimgunge is much larger than Kajla, it is distant from that place six miles.)

The reason why the jute from this part is so good is that there is a large amount of chur land, and fresh soil can be chosen. They also have plenty of river water in which to steep their jute. This jute is grown on low flat land which is annually submerged. Mustard and winter crops grow in the higher lands; on the low-lands nothing grows but jute. In August this land is submerged. As the water rises they cut the jute which is then in flower. If the water rises too early the jute is spoilt, as it gets a bad color, and roots shoot out up to the distance the water reaches it. It is then very inferior, but it is not abandoned. I have never known the floods so high as to entirely destroy the jute.

There are two kinds of pat—bawa and dholonto, both are white jute. The latter variety runs into seed sooner than the former, i.e., in the beginning of August; one kind is as good as another. Mettee is not grown here; mesta to a small extent, and is mixed with jute. A corner of the field is left for seed, i.e., the higher land, which is not likely to be submerged. We leave the smaller plants for seed, and after picking, we steep the plant and produce a low kind of jute. I do not think Kurimgunge jute is deteriorating.

The price of this year for the best jute was Rs. 2-4, and for the worst Re. 1-8. Last year it was Rs. 8-8. The quality of this year was not inferior, but the market last year was so active that all kinds sold. The year before it sold at

Rs. 4. All last season's jute has been sold, what little comes in is being used for home consumption. The seed is already sown, and the plants are about a foot and a half high. I hear the cultivation will be less this year. The low prices have damped the ardour of the growers. Had the high price continued, more land would have been cultivated. There are large tracts of land, simply jungle, which would do well for jute. This jungle consists principally of reeds and bulrushes. Last year was the largest cultivation I have ever known. On the higher lands I know manure is put, but on the flooded lands none is needed. I make no advances. I take none. Some gunny bags are made at Gorodea by the class of people called kopalies, and these are brought to Kurimgunge for sale. Each bag is sold at 3 to 3½ annas; they are bought by the ryots, &c., for keeping paddy, they are made of the best jute. It is more profitable to sell bags than raw jute. About a seer to a seer and a half go to a bag large enough to hold one and a half maund. One man can prepare the thread and make a bag in three hours; men and women manufacture them. The kopalis have no other trade, and no other class here makes them in this part.

If prices rise, the cultivation, I am sure, would increase. For the past ten or twelve years the increased cultivation has been very marked. There are roads in certain places, but there are no carts or pack-bullocks. I get a commission of Rs. 2-7 per hundred maunds from Mr. David and the Shahas, and from the itinerant trader half an anna a maund, or Rs. 3-2 per 100 maunds. I charge less to my large and regular customers; they bring cash. I get no other remuneration.

No. 58.—Kolunder Khan (of Boira-Gopal-gunge),—Mymensing, 7th May 1873.

My holding is 8 arrahs (15 cotahs=1 arrah); of which I grew jute on one arrah last season and got 13 maunds of jute, which I sold partly to the itinerant traders, who yearly come here from Shabar and Serajgunge, and partly to the beparies here for Re. 1-10 the maund all round. I grew white jute; we, in this part of the district, call it the nalia crop. I grow jute on chur land, which is not flooded from year to year. I do not manure the land. I do not grow jute for two consecutive years on the same land-jute being an exhausting crop. I select new land and come back to the old land two or three years after. I shall sow aus' rice on the land which grew jute last season. The land upon which the jute seeds are being sown during the present season, mustard will be grown in winter. I intend to grow jute this year on one arrah of land. It is probable that ryots will reduce the cultivation this year, as the prices they received last year for their jute were low. We commence tilling the land destined for jute in the month of Aughran, the land is ploughed twice. If it is land that will grow mustard well, it is ploughed up 10 to 15 times, and in the latter part of the month sursoo is sown. Some people sow in the beginning of the month. In the month of Fálguna the mustard is cut. From

that time to the time of sowing jute seeds the land is ploughed up ten times, and if necessary as much as 15 times. In the month of Vaisákha after a fall of rain, i. e., when the ground is moist, I sow on a clear day seeds broadcast; each arrah takes four to six seers. On that very day the moi or ladder is passed on the ground, and a thin crust of earth covers the seeds. In eight or ten days the seeds germinate; when the plants are seven to nine inches high the harrow is passed in order to break the clods of earth; when the jute plants are one cubit high or little more the grass is weeded by the hand. We do not, as a rule, weed out the grass more than once, but if grass grows again the process is repeated; the harrow is passed twice or thrice; four days after the first harrowing the second harrowing takes place, and some times a few days after the third harrowing is done. After the fall of fain a kind of thick cream deposits itself on the land, and the harrow is passed on in order to remove this; when the plants are two and a half hands high, if they are pretty thick, the weak and ill-grown plants are pulled up and thrown away. In the month of Sravana or Bhadra, when the plants are in flower, I commence cutting them. The fibre of the plants cut in flower is finer than that of the plants cut in seed, but the yield is not so large. At the latter part of Bhadra and in Aswina- the plants run into seed. I cut some then; I do this because I get more jute from these plants. If the yield of a plot of land be eight mounds when the plants are cut in flowers, the outturn, in case of the plants running to seed, will be 10 maunds. After cutting the plants the tops are lopped off, and the plants are tied into bundles and steeped. Those who can afford, steep the plants at once, those who cannot, keep the stalks for two days or so in the field. In my case the plants are stacked in the field for some two days. This is done when we are particularly busy in looking after rice, chilli, and sugarcane, and consequently cannot get time to steep the jute at once, although we all know that steeping soon after cutting does good to the fibre. By keeping in the fields the plants are hardened, and do not rot soon.

The fibre of the plants cut in flower, separates sooner than those in seed. The fibre is then peeled off by the hand from the thick-end; this fibre is washed in the same water in which it was steeped, or, if the water be very dirty, in clean water. It is then hung up on bamboo scaffoldings, and dried for two or three days, and then tied up in skeins. I steep jute in a bheel or tank or in a river where there is no stream. Jute does not rot in a running stream. In the case of land upon which no winter crop is grown the land is ploughed twice in Aughran, four times in Pous, once in Magha, tour times in Falguna, thrice in Chaitra, and twice in Vaisákha. The cost of cultivation per arrah is Rs. 8 or Rs. 9. I do not plough myself, nor is it done by any member of my family. I have servants employed by the year who work. We get here four ploughs to the rupee, sometimes three. The wages of labor are from three to five annas per day including food; I have my own ploughs and bullocks. The seed-pods of the jute I grow are

globular, the stem is white not reddish; I keep seeds of any plants I like. Those of small and those of large plants are preserved by me for next year. I dry the seed-pods for six or seven days ere storing them. Seeds are not sold here, so I cannot tell their price. Both rain and sunshine are necessary for the growth of jute plants; too much rain stunts their growth, and they turn out red; too much heat also stunts their growth and nearly kills them. Beecha, a kind of insect, attacks the jute plants and eats up the leaves and young shoots, whereby the plants are damaged a good deal. They appear in the month of Sravana and Bhadra when there is no rain. Too long steeping weakens the fibre and spoils the color; under-steeping causes runners and bark to stick to the fibre. Last year jute grown by me gave me a profit of only Rs. 5 or Rs. 6. I also buy jute and sell it to the mahajuns on my own account. Last season I purchased 800 maunds of jute at prices varying from Re. 1-4 to Rs. 2 the maund. I bought sada pat and sold it at various rates up to Rs. 2. Last year's trade of jute did not make me a loser, but I got no profit. The mahajun, who purchased from me, has sent the jute to Calcutta. Jute is sent from this place in native boat at a cost of Rs. 50 to Rs. 60 per 100 maund. I purchase jute for cash from the growers who bring it on their own heads to the hat. I borrow money from the mahajuns, and if they want jute I give it to them at market rates. I pay interest at Rs. 2 and Rs. 3 per cent. per month. I make no advances to the growers. About 40 to 50 thousand maunds of jute are imported to this place; all this is bought up by the mahajuns and sent to Calcutta, sometimes all the way by native boats and at other times in boats from this to Naraingunge and thence to Calcutta by steamer. All this jute is brought to this hat for sale, and people bring them sometimes in small dingies and sometimes on their heads. We do not buy jute from the fureahs. There are some fifteen beparies like myself at this place. Mettee and mesta are also brought up here sometimes. Jute comes from villages lying at a distance of three to four hours' journey. grows on low lands, as also mesta; mettee fibre is reddish; sada jute is finer and in greater demand than mettee or mesta; mesta is brought to this market separately; mettee was brought last year in very small quantities at Re. 1 and Re. 1-4 the maund; mesta was bought and sold at the price of the white jute; we mix up mesta in jute and sell; we get very little mesta here. Last season's cultivation of jute was larger than that of any previous year. Small gunny bags capable of holding 1 maund and 10 punsaries of grain are made by kopalies, and brought to the market for sale—some 50 bags are brought to every hat for sale, and purchased for domestic use; they are not exported. Gunny-bags are made of all kinds of pat and mesta. I do not know the particulars about the manufacture of gunny-bags. I am not an aratdar; I do not sell jute through an aratdar. Shumboogunge, in this district, is the largest place for the purchase and sale of jute. The fibre is called by the people about here pdt or koshta. Jute fibre has of late been somewhat deteriorating,

and the causes of this are want of good water in the neighbourhood of the cultivators, and the increase of cultivation by ryots who cannot afford to look after it well. The pat brought to this place is not so good as that from Kurimgunge or even Backrabad; the fibre here is rooty. I cannot explain the cause of black specks on the fibre; I ascribe this to the beechas. Those parts will never rot where they deposit themselves; they will turn out specky.

No. 59.—BISSESSUR CHUCKERBUTTY, Agent of DEBENDRO NATH AND BENODE LAL SHAHA (of Shumboogunge),—Mymensing, 9th May 1873.

We do business at Shumboogunge in the district of Mymensing. We deal in jute. We purchase jute and send to our firm at Calcutta where our agents sell it to the shippers. I am in the service of my employers for 20 years, and before that time my principals have been doing the jute business. Annually we buy and send to the Presidency 15 to 25,000 maunds of jute. Last year I purchased about 22,000 of maunds at prices varying from Re. 1-8 to Rs. 2-12 the maund; we, as a rule, purchased good white jute; the red and derk colored jute, which is the inferior kind was also bought, but in small quantities. I do not buy mettee or mesta pat. I buy from the grower or from the fureah who purchases it from the grower on market days. The fureahs at first make a contract with us on sample for the supply of 10 to 300 maunds of fibre at fixed prices; they gradually bring the jute to us. The fureahs take an advance from us at the time they make the contract; we do not charge any interest; we buy at the rate fixed at the time of contract. Should he fail to fulfil his contract, he is made to give back the money with interest at half or one anna to the rupee per mensem. It also happens that in case of the fureahs not being able to supply to the mahajuns the quantity for which advances are made, the party making the advance recovers the money advanced with the profit he would have made had he been supplied with it. When we buy from the ryots or growers themselves we do so at hats. The ryots do not, as a rule, bring the entire yield of their crop in one hat; they bring in small quantities from half maund to one and a half maund every hat; we pay them cash, wherewith they purchase oil, salt, fish, &c. Annually I and other firms purchase at Shumboogunge 1,50,000 to 1,75,000 maunds of jute; we send a portion of this to Serajgunge, a quantity to Naraingunge, and a quantity to Calcutta; we send jute in native boats to Naraingungo and Shumboogunge, and sometimes to Calcutta; but oftentimes our export goes in steamer from Naraingunge. About 20,000 maunds go to Naraingunge and as much to Serajgunge, the rest is forwarded to Calcutta. Some years we do not send any jute to Serajgunge, what little we sell at these two places we sell through aratdars. At Serajgunge we have a branch firm of our own. During the rains we send jute by the Brahmaputra and Jamoona to Calcutta at Pathooriaghatta; during other

seasons it is sent vid Naraingunge; the Naraingunge route is the quickest. In these months the Brahmaputra is not havigable for large boats, and we have to send jute in small boats. It costs from six to nine and ten annas in sending a maund of jute to Calcutta, independently of sundry other expenses, such as cart-hire from Shumboogunge to the river-side which is three to six pice the maund, &c. We generally ship our jute at Boeah, which is two hours' journey from Shumboogunge, and at Nuseerabad; we make up the drums here and send to Naraingunge, Serajgunge or Calcutta; we assort the jute before making up the drums; we pay different rates for different kinds of jute. Sometimes the ryots bring wet jute, which we dry before tying up. I have observed that jute is gradually deteriorating, and this is owing to want of good water. Last season's jute was not so very good as that of the season before. Last season the import of jute was the largest ever known, and the cultivation was the largest also. People of Atteah and Cagmari come to Shumboogunge, put up with the aratdars, and buy jute from the fureahs through the aratdars. The aratdars charge two pice and an anna per maund as their commission; we do not buy through the aratdars. Some 15 beparies like our firm deal in jute, and send it to the three places I have mentioned. Jute comes to Shumboogunge from villages lying within about a day's journey from our place. People bring jute on their heads and in boats. The import of the season before last may be estimated at 1,50,000 madads. The weight by which jute is bought and sold is by the seer of 84 tolas and 10 annas sicca; we store jute in kutcha godowns upon bamboo platforms. I have not got any quantity of last year's stock unsold, but other beparies have about 1,000 maunds yet unsold. Some of the growers have kept a portion of the yield of their respective jute crops in hopes of getting a better price. I cannot say what quantity has been so kept. The jute imported here is equal to Kurimgunge pat which is brought here by fureahs in boats. The import is brisk here from the latter part of Bhádra month to the end of Magha month; even now the people sell two to four maunds every hat day.

No. 60.—SHEIK SHACKER MAHMOOD (of Jailkhanar Chur),—Mymcusing, 10th May 1873.

I am a cultivator, and own a holding of 8 poorahs of land, out of which I grew jute on 22 cottahs last season. The yield was about 24 maunds, which I have mostly sold for Re. 1-8, Re. 1-14, and Rs. 2 the maund. I have kept some fifteen seers of jute for home use. I grow the jute called pechinalia. The land on which I grew it was chur land which I manured with cow-dung supplied by my own cow-house. In this part of the country, we do not buy manure, and except cow-dung, no other kind of manure is used. With all this manuring, jute does not grow well on the same land for three consecutive years. Every third year we select new lands for jute, and grow aus rice on the old land. My land is partly very good, and the portion well ploughed

up gives fibre at the rate of 16 maunds per poorah in the first year, when no manure is needed. In cases of the kheel or waste-land in the first year, the same land, even if well manured, will not vield more than 12 maunds. We commence tilling the land in Bhadra and Aswina. In Kartika, mustard is sown. In Mugha the mustard is reaped, the land is then again ploughed 8 or 10 times, and the seeds sown in Chaitra or Vaisákha after a shower of rain. This year, owing to the want of rain, the sowings have been late. In Bhadra, Aswina, and Kartika, and sometimes in Srávana, the jute is cut. The best time for cutting jute is when it is in flower, and we commence reaping at that time; but having to attend to the ads paddy crop, and to the preparation of the ground for the mustard, I cannot manage to confine my attention to jute solely. I have therefore to cut some plant when in seed. The fibre which these plants yield is necessarily coarse, and it takes a longer time to steep. It is impracticable to steep jute in running stream. It is difficult to keep the plants, and they take a very long time to rot. I steep the plants in the beds of river where there is no stream; 10 or 12 days are sufficient to rot the plants cut in flower, but it takes about 20 days to The fibre of rot the plants when cut in seed. plants cut in flowers is fine and silky, but is heavier in yield when cut in seed. I tie up the plants in bundles, say of 80 or 100 in each bundle, and lay them in water, and place upon them tops of jute plane with leaves, which I remove ere steeping; upon these I place clods of earth. Some eight or nine days after, I commence examining the bundle then being steeped to find out whether they are fit for separation or not, and when fit, I peel off the fibre from the root-end, and then wash the fibre in the water where the plants had been steeped; but if the water has been discolored, I wash it in fresh water, and then dry the fibre for a day or two, and tie up in hanks. I sell jute generally at home; the fureahs come to buy it up. But if I want money for the market, I take a small quantity there and sell it to the beparies, who have houses in the place. The jute I grow is inferior to Shumboogunge; the length of the fibre being 3 to 7 cubits. I have already sown jute seeds on one-half poorah of land. In consequence of the drought I have not been able to break up virgin soil. I have, however, well manured the land. One poorah requires about six seers of seeds. The weight by which jute is sold is of a seer of 84 tolahs 10 annas sicca weight. Rain and heat are necessary for the growth of jute. Too much rain stunts the growth of jute plants, and too much drought kills them. When rains are badly wanted, the caterpillars called beechas eat up the leaves and young shoots and damage the plants. Too much steeping weakens the fibre; under-steeping makes the fibre coarse and full of bark. A portion of jute land belonging to me is flooded during the monsoon, another portion is high land; the latter grows better fibre. Accumulation of water at the root makes the fibre full of root. One poorah of kheel or virgin land produces 16 maunds of jute. As a

rule, I work myself in the land, and there is Hamoor or Jogul in our part of the country (Ganta). I cannot tell the cost of cultivating a poorah of land, but the following details will give some idea of it. Ploughs are never hired in our place, each man has his own plough:—

	Rs.	Α.	Р.
Eight to ten ploughings, one			
weeding, thrice harrowing			
and pulling up weak plants,			
-40 men	10	0	0
Cutting and removing,—40 men	10	0	0
Separating fibre,—40 men	10	0	0
Drying and tying up,—8 men	2	0	0
Rent	2	8	0
en . 1	~		
Total	34	8	U

I scarcely incur these expenses. I and other members of my family do all the work ourselves. I suffered a loss last season when I grew more jute than at any other time; I did not reduce the rice cultivation. I borrow money from the mahajuns and pay in jute at market prices. I pay interest at Rs. 2-4 per 100 per mensem.

No. 61.—MAHOMED NUD HUSSEIN (of Jamalpore), —Mymensing, 16th May 1873.

I own a large tract of land, of which I cultivated 10 beegahs with jute. I got 40 to 45 maunds of fibre; I have sold all at Rs. 2 per maund, except what I kept for home consumption. Next season I shall cultivate 7 or 8 beegahs. I do not take advances; expenses of cultivation are as follows:—

				\mathbf{Rs} .	. A.	P.	
Fifteen ploughings,	including	harrowing		3	12	0	
Seed one seer		•••	•••	0	1	3	
Weeding		•••		1	8	0	
Cutting and steepin	g	•••	•••	1	8	0	
		Total		6	13	3	•

I cut jute when in flower; if cut when in seed, the fibre is bulky, heavy, and coarse. There are three kinds of jute—madhái, patlai, and desi; also mesta. The best kind is desi. The difference in the three kinds is, desi gives white long fibre, seeds brownish red, the stalks green, seed-pod round; madhái fibre is of an earthy color, and shorter than desi, seeds same; patlai fibre reddish, seeds same.

I grow jute on both high and low-land; lowland gives the best quality of fibre. The former land I sow in Fálguna, the latter in March. If land is manured, I sow it year after year with jute, if not, I leave it fallow. The jute cultivated on low land is called "aswina" and on the high-land "bhadooria." In gathering of seed, I take it from no particular plants. Heavy rains, when the plants are very small, cause jungle to spring up, which proves detrimental to the plants. There is still jute in the hunds of the cultivators and mahajuns. After cutting the plants, I tie them in bundles and steep in water immediately. I steep in water without current; this water is dirty. Sometimes I steep in a creek of the river; this last water gives the best jute. The plants cut in Ashadha (June, July) need steeping 6 or 7 days, those out later (July, August) need 15 days.

The Ashadha jute is cut first. The fibre is stripped off from the bottom. This past season a quantity of jute was abandoned. There is a kind of hairy caterpillar called "chinga," which destroys jute by eating the leaves and bark; and when the bark is bitten, a black speck appears on the jute. We sell the jute we grow at times to the country traders, who go about the villages, and sometimes the ryots take it to the hals; sometimes I send my jute to Serajgunge direct in charge of boatmen. I ship to the dallals (brokers). I pay no commission. The buyers pay it. The boatmen bring my money either in cash or in articles of trade. I do not think I get the fair market price. I send down at a time 50 or 60 maunds in a boat at a cost of Rs. 5 or Rs. 6. I have never suffered loss by the dishonesty of boatmen, but I have known my neighbours so to suffer. The weight used is 84 tolahs 10 annas to the seer, and 40 seers to the maund. This is the same weight as is used in Serajgunge.

No. 62.—RAM SOONDAR SIRKAR (of Soobunkolli),— Mymensing, 18th May 1873.

I cultivated three pakis of low land, which, at the height of the floods, is four feet under water. The yield was 29½ maunds. The storm had levelled the plants, and besides, each laborer went home to look after his own affairs. One-fourth of the jute land was cultivated in partnership; the remaining three-fourths I cultivated myself. Three-fourths paki yielded 7½ maunds, the price whereof was Rs. 16 at Rs. 2-2 per maund. I cannot give the exact cost of jute cultivation alone, as I cultivated jute, teel, and paddy at the same time and with the same men, but from inquiries, backed up by my own calculation, I state as follows:—

First measurement of land—

18 Inches = 1 Hat. 14 Hats = 1 Nal. 6+5 Nals = 1 Paki.

One paki of land must be ploughed 12 times.

	• -		Rs.	A.	Р.	
Expense of ploughing		•••	3	0	0	
Weeding twice, 15 to 7	men	•••	3	0	0	
Clearing away stunted	trees,	and				
a last weeding			1	8	0	
Cutting and steeping		•••	2	8	0	
Washing and drying		•••	3	0	0	
Seed	•••	•••	0	4	0	
Rent			1	0	0	
T	otal	•••	14	4	0	

The average yield is eight to nine maunds per paki. I consider that the growers will, as a rule, understate their yield per beegah. A tolerably well-off ryot has from two to four yokes of exen and one or two ploughmen. The above calculation includes cost of hired labor, which any class of people are obliged to employ. Those who cultivate themselves of course save more. I made Rs. 19-12 by the two and a half paki which I cultivated on the partnership principle, and by the three-fourths remaining Leannot say what I made. The most profitable is jute; the cost of paddy cultivation per paki is Rs. 7 to Rs. 3, and that of teel Rs. 7 to Rs. 8. The outturn I cannot say.

I cut the plant before it flowers. The flower jute is best. The fibre of the plant, cut before it is in flower, is thin and weak. The fibre of the seeding plants is stronger, and there is more woody substance at the butt. The very best time to cut is just as the seed-pods are growing after the flowers drop off. I calculate jute cut when in seed will weigh one-fourth more and fetch onesixth less than jute cut when in flower. Jute which has not been standing in water is cut and steeped at once. Jute which has been standing in water is stacked in bundles and kept to dry for two days. It rots sooner. It takes from a week to a month to steep jute according to circumstances, i.e., development of the tree, and the nature of the water. Stagnant water takes less time, and, if clean, makes the finest jute. Stagnant dirty water gives dirty color to the fibre.

No. 63.—Jebun Dass Augurwalla' (of Gouripore),—Goalpara, 2nd June 1873.

I am the agent of the mahajuni firm of Jyth Mull Dhunraj, Oswals at Gouripore, and have been so for the last 12 years. The firm deals in jute, piece-goods, brass, and bell-metal-ware, as well as buys and sells some 4 to 6,000 maunds of jute annually, half of which is purchased direct from the growers at the Gouripore hat, where they bring the jute for sale and half from shaokars (shopkeepers). As a rule, we do not buy from the paikars, and never through brokers. Our transactions are conducted in ready money. No advances are made to the growers, but some money is paid to the shaokars a month or fifteen days before the day of purchase. The shopkeepers of Gouripore and of Protabgunge, which is about eight miles to the north-west of that place, sell jute to us, and our men go and bring it thence. During the last season we paid Rs. 2-8 to Rs. 3-1 per maund of 84 tolahs and 10 annas to the seer, which is the standard weight in the district; the weight in Calcutta being 80 tolahs to the seer. The price during the present season ranges from Rs. 2-4 to Rs. 2-6 per maund.

About one-eighth of last season's produce still remains unsold with the mahajuns and paikars, but none of it is in the hands of the actual growers. The white jute is largely brought in, and commands a better price in the market than the redtinged fibre. Our jute is largely exported in hanks of $2\frac{1}{2}$ seers each to the mart at Serajgunge, where it goes by the name of the Gouripore pat. The jute, of which we occasionally forward small quantities to Calcutta, is made up into drums of about one maund each, which costs us from Rs. 4-8 to Rs. 5 per 100 drums. The jute brought for sale by the growers is in hanks. In the month of Kartika and in the middle of Aughran it is brought by them in a wet state, which tends to discolor the fibre.

Steamers take jute from this place to Calcutta at a charge of 9 annas to 12 annas a maund, according to the season; but I understand that the rates have now been reduced to 8 annas per maund. It costs us, besides, an anna the maund

for dingy hire to convey the jute to the steamer, the distance of our place of business from the ghat being about three miles during the rains, and about eight miles during other months. In Calcutta we pay an anna to five pice for carrying the jute to the godowns, and the aratdar charges a rupee upon every 100 rupees' worth of jute sold by way of commission, besides godown hire, for which there is no fixed rate. The trade in jute has been on the increase for the last seven years or so. The Gouripore jute is good, but that of Kankripara is better. A large portion of the former is free from wood and bark, of a good color, and is of a length of from four to six cubits. At Serajgunge also we pay a rupee for every 100 rupees' worth of jute sold. The sales are effected through our own countrymen and never through the Bengalis. The price is paid to us in Serajgunge twenty days after the jute is weighed, but in about ten days at Calcutta, where, however there is no fixed time for payment as at Serajgunge. Jute is brought in larger quantities now than in former years, but the quality of the fibre is deteriorating in many places. The growers, who are aware of this deterioration, attribute it to scanty rainfall, and consequently, to insufficiency of water in which to steep and wash the jute.

Itinerant traders, locally called bhasania beparis, come here from Serajgunge annually in the months of Aughran, Pous, and Mágha, and buy jute from the mahajuns and paikars. Their purchases are made for ready-money. No European firm makes purchases here. There are three oswal firms here dealing in jute. Geramari, Protabgunge, Shelye Kutcherry, Hasdewa and Dhoobree send jute to this mart. Last season the Gouripore traders bought some 40,000 maunds of jute, but in the previous season the quantity was 7,000 or 8,000 maunds less.

No boats are obtainable here. Jute is sent down to Serajgunge in Bengali boats which come up thence. It costs us from Rs. 25 to Rs. 30 for 100 maunds of jute sent down to Serajgunge. As a rule, 100 maunds of jute weighed and shipped to Serajgunge is generally reported to be found three or four maunds short there. No such deficiencies in the shipments are, however, heard of from Calcutta. Jute boats are not insured.

New jute comes into market in Kartika, and the trade, which is brisk in Aughran and Pous, begins to decline in Mágha.

Up to Bilashipara in Goalpara, which is about two miles to the east of this place, juteris, to my certain knowledge, grown. I have no knowledge of the north side; but I hear that the cultivation of the plant is carried on as far as Backsherhat.

No. 64.—BABOO PROTAP CHUNDER BUROOA, ROY BAHADOOR, ZEMINDAR (of Gouripore),—Goalpara, 2nd June 1873.

In this part of the country jute turns out of a bad quality, if the processes (1) of sowing, (2) cutting, (3) exparating, and otherwise preparing the fibre, are not carried out in proper time.

Continued rain and continued drought are equally unfavorable to sowing. If sown in disregard of the weather, the seeds are sure either to rot or to be burnt up. In the early part of the month of Vaisákha, during the present season, there was continuous rain for days; and the ground, which had been previously ploughed up and otherwise prepared for cultivation, got caked and had to be re-ploughed before the seed could be sown. The drought then followed; and the young plants began to look unhealthy and gradually drooped. The Vaisákha sowings in this part of the country have been nearly destroyed; and hail, and drought intensified the damage caused by the previous excessive rainfall.

A sunny day after a copious shower of rain is the best time for sowing the jute seed.

Under favorable circumstances, the plants should be cut just when the pods are running to seed. Haste and tardiness in cutting alike injuriously affect the quality and value of the fibre. If the plants are cut too early, that is, before the seed-pods begin to appear, either on account of the eagerness of the grower to be first in the market or the occurrence of floods, the fibre may be good to look at, but it is weak and weighs light. When the cutting is delayed, the fibre is coarse.

To obtain good fibre, the plants should not only be cut in time, but the stalks should be steeped in good water, where they should be kept neither for too short a time nor too long. Where good water is not available, and dirty water is used for steeping in, the jute produced is muddy-colored. Such parts of the stalks as float above the surface of the water do not rot well; and the result of this partial steeping is that the fibre is overspread with runners. When, from some cause or other, and sometimes perhaps in expectation of a sunny day, the grower does not prepare the fibre in time, the stalks are necessarily over-steeped. If, besides, the fibre is dressed on a wet day and exposed for drying in a place not protected from the rains, the jute turns out of a reddish color. The hailstorm, as has been the case this year, causes considerable damage by altogether breaking the plants. Weeding is an important process in the cultivation of jute. Grass must be well weeded out or the plants will not thrive. Jute cultivation and trade have been on the increase for some years past; but owing to the low prices of the last season, the area of cultivation has been narrowed during this year.

No. 65.—Shoar Nysho (of Teamari),—Goalpara, 3rd June 1873.

I hold a tenure of two and a half beegahs of land.

Within the last seven or eight years the people in our part of the district have taken to the cultivation of jute on a large scale. For the last seven years I have been growing it for sale. Before that time small quantities of it were raised by us for local consumption.

Last year I cultivated two dones of land with jute, and I obtained five and a half maunds of fibre. Had I not fallen ill at the time when the

field needed weeding, and had this very necessary process not been neglected, the yield of the fibre would have been about seven maunds. The jute I prepared had runners and was of a bad color; and I had to sell it for Re. 1-4 per maund to an itinerant trader, who came up from Serajgunge. There is no good water available near my house, and I could not make use of the Gudadhur river, as stream water is known not to rot the plants quickly enough. I had therefore to steep them in a shallow pond. Hence the muddy color of the fibre and the runners on it. The good quality of fibre prepared in our village was sold at Rs. 2-12 to 3, and the medium quality at Rs. 2 per maund. No brokers are employed in our transactions. As a rule we sell jute, not to the paikars, who weigh it unfairly, but to itinerant traders and mahajuns.

During the present season I have raised jute on two and a half dones of land, which I sowed in Vaisákha. The plants are now a foot and a half high; but the hail-storm of about fifteen days ago has broken the tops of the plants, which I fear will not thrive. I sow jute on high doas land near my homestead. It grows better on doas land than on matial soil. I manure the land with cowdung in Kartika, Aughran, and Pous, and begin ploughing it in Magha. This land has to be ploughed and to be passed under the ladder ten or twelve times between Magha and Vaisákha, in which last month, after a shower of rain, the seeds are sown broadcast. On the day of sowing the ladder is again drawn over the land, in order that the seeds may be covered over with earth. If rain falls soon after, the seeds do not germinate, and we have again to break up the ground, which gets caked, and to resow. But, if sunshine follows the sowing, the seeds germinate in three days, and the field has to be weeded in from fifteen to twenty-five days thereafter. When the plants are a foot and a half high, the ill-grown plants are plucked out and thrown away, in order that the field may be thinned and the promising plants allowed sufficient space to grow well. A space of from five to six inches is necessary for each plant. I weed once; but two weedings are better. the plants in Bhadra and Aswina, when the pods are running to seed. The stalks, which are made up into bundles (each for one man to carry), are then thrown into water, into which they are sunk by the weight of the tops of the jute plants, cut off from the stalks and of other jungly plants, which are placed on the bundles. In from fifteen to twenty-five days the stalks begin to rot. The color of the jute depends entirely upon the water in which it is steeped. In a large sheet of water, such as a branch of a river without a stream, the jute acquires a fine color. If unavoidable, the stalks, after the water has been squeezed out of them, are converted into fibre even on a rainy, day. But the jute is then made up into hanks and kept back till a dry day, when it is exposed to the action of the sun. The fibre is separated from the thick end of the stalks by repeated jerks in water. It is then washed in the same water, in which it has been steeped and afterwards dried for three days. Oversteeping spoils the fibre, destroying both its color and strength. Under-

steeping makes the fibre woody. I grow bitter pat, which produces the white jute. We do not grow the red jute. There is another kind of jute, called hemunto. The bitter pat yields a shorter fibre than the hemunto pdt. I set apart a corner of the field for seed. I cut the plants preserved for seed in Aughran. The seeds are sufficiently dried in from five to ten days; the stalks are used for fuel. Jute will not grow on the same land for two years consecutively. Bethi dhan is rotated with jute. Sometimes sursoo (mustard-seed) is grown in jute lands in the cold weather, and cut in Magha and Falguna. I have my own ploughs. and I myself work on the jute fields. I also employ a servant to assist me. I cannot give the cost of growing jute on a done of land. Alternate rain and sunshine favor the growth of the plants, which are, however, stunted by drought. Rainy weather without sunshine gives a reddish color to the stalks. The Aicha or Shoapocka (hair-caterpillar), when it attacks the plants, eats up their tops and leaves. There is no particular season for its appearance. I have seen it on the plants both in the rains and in dry weather. Some years I have kept 35 seers, and some years one maund of fibre for home use. Gunny-bags are not made here. I do not grow jute under advances. People sometimes carry jute to market, either on their shoulders or in bangies. This year jute will be cultivated to a less extent than in former years. I cannot say how much less. There is no special rate of rent for jute land

No. 66.—RAM HURRY SIRCAR (of Hatdaha),—Goalpara, 8rd June 1873.

My holding consists of 2½ bees, equal to 50 beegahs. I cultivate 3 beegahs with jute; and the ryots, to whom I let my land, also carry on the same cultivation. I raised 5 maunds of jute last year, and sold it for Rs. 2 per maund; I have sown the same extent of land this season, which, from want of rain after Vaisakha, has, however, been unfavorable to the crop. During such droughts worms eat up the plants, the ground dries up, and such of the plants, as are not destroyed, are stunted. As I cultivate the land myself, it costs me only for oil-cake, which I buy at 8 annas a maund from the oil-mills. Besides this oil-cake, of which I put about 3 maunds to a beegah, I also use cowdung as manure. I cultivate jute on high land. The highest land, where water does not lodge, is the best adapted for this cultivation. The maund, I calculate by, is of 87 tolahs to the seer. I know of two kinds of jute, the red Hemunty and the white Betari. The Hemunty is of better quality. Both kinds are sown at the same time; but the Betari first comes to maturity. We cut Betari in Bhadra and Hemunty. in Aughran. The seeds of both are of the same color and shape, as also the seed-pods, which are globular. The flowers of both are yellowish. I cut the plant when in full flower. The plant, if cut late, does not rot properly and the fibre it yields is coarse; I select new land for the cultivation every year. If I fall back on the old land the second year, a double quantity of manure has

to be used. The year after raising jute, I grow early paddy; jute, not paddy, exhausts the soil and unfits it for the cultivation of jute, but not for other crops. Jute is not grown with hired labor. A man owning more land than he can cultivate, lets out the surplus on the condition of an equal share in the profits—" Adiaree."

After cutting I steep jute in water at once, and leave it there for about eight days. When sufficiently steeped, I break the plant at about a foot from the root end. I then dash the stalk in the water to rid it of the wood, wash it in the same water and dry the fibre in the sun for two days. Over-steeping weakens the fibre and injures its color. If it is raining, when the plant is ready for dressing, I have to dry the fibre under cover. The jute thus produced is not of a good color. I lop off the tops of the plants after reaping and these tops are placed on the bundles of stalks to sink them into the water. three or four days clods of earth are heaped upon these bundles to sink them still further. The speck on jute is caused by under-steeping. Fibre dried under cover turns out to be of a red color. Grey color is produced by muddy water and by the contact of the fibre with mud. Runners are the result of under-steeping. No jute was abandoned last year; a small quantity of that year's fibre has been left. Hailstones have destroyed some of the plants. Hailstorms generally come on annually in Vaisákha and Jyaishtha.

The Woochinga (cricket) by burro wing and the chosa pocka by eating the leaves, destroy jute.

No. 67.—PEER MAHOMED MANDAL (of Damoomara), — Goalpara, 3rd June 1873.

I hold a tenure of 20 bees of land at an annual rental of Rs. 60. I grew jute on only 3 dones last season and got 8 maunds of fibre which I sold to traders from Serajgunge in the month of Magha for Rs. 2-8 per maund all round. In the beginning of the season I got an offer of Rs. 3 per maund, but I did not then sell in expectation of a better price, but I was disappointed. Besides the yield of my own crop, I had purchased 24 maunds of fibre at Rs. 2-8 a maund from the growers to whom I had made advances in the month of Jvaishtha and Ashadha: I grew and bought desi dhola pat. The tillage of land for the cultivation of this jute commences in Aughran, and the seeds are sown in Chaitra or Vaisákha after a shower of rain. Unless the ground is moistened by rain the seeds cannot be sown, and if sown, do not germinate freely, the seeds being eaten by woochinga pocka. The land sown with jute is once or twice weeded, and the plants are thinned and cut in Aswina and Kartika, when the seed-pods have appeared but not ripened. It is bad to out the plant when in flower, as the fibre becomes weak. If cut when the seeds are ripe the fibre gets course. After cutting the stalks are made up into bundles and at once steeped in water for 12 to 14 days. The tops cut off from the plants as well as jungly plants and clods of earth are placed on the bundles to make them sink well in the water. The fibre is separated by breaking the plant a cubit above the root end and ridding it of wood and bark by shakes and jerks on the water. This year too I have sown on 3 dones; but the drought has already done mischief to the young plants, which have been dried up a good deal. I grow jute on kanda and chur lands. These churs have been formed some 60 years.

It is now a mixture of sand and clay; I manure the land with cow-dung. People here do not use oil-cake. The Pat which we grow is called in commerce Singmari Pât. The jute grown by me and by others in my village is taken by the traders to Serajgunge. I sell by the seer of 84 tolahs and 10 annas. I steep jute in one of the creeks of the Bramhapootra. In our part of the district all men steep in still river water. hence the good color of our jute. In my land, which is chur land, paddy does not grow well. The rent per done or bees is Rs. 2 and Rs. 3 annually. I work with hired labor; but I cannot tell the cost of cultivating a done of land with jute. It may be Rs. 10 or 15. We do not grow jute under advances, I keep 2 or 3 maunds of jute for home consumption, I have cattle and buffaloes. The seed-pods of the kind of jute we grow are roundish, I have not seen red jute plants. I grow Betari jute. The jute land cultivated by me is not flooded yearly. We sow jute on the same land for two years running, but not more. Aus paddy grows on jute land in the year in which jute is not sown; jute does not exhaust the soil as regards the paddy crops. It weakens the soil as far as its own growth is concerned; "aicha" some years eats up the leaves of the jute plants. chinga cuts the root and a kind of black insect cuts the top of young plants. Drought brings on all these insects. We do not, as a rule, keep the best plants for seeds. Half a seer of seeds is enough for a done of land. When seeds are purchased we put a small quantity on moist ground to see if they germinate or not before sowing the whole. Churs formed 10 or 15 years may grow a jute crop. The cultivation of jute this year will be about 4 annas less. Jute cultivation has been carried on in our part of the pergunnah for the last 5 or 6 years. In the season before last I sold jute at Rs. 3, 4, and Rs. 4-12 per maund. Last year jute growers suffered loss.

No. 68.—MADAROO SHRIK (of Kushbey Jameera),—Goalpara, 4th June 1873.

I am a cultivator and grow jute: last year I raised about 15 maunds of jute on 5 dones of land. In consequence of low prices, I have not yet sold the last season's jute. I was offered Rs. 2-6 a maund, but I would not sell it at that price in expectation of higher figures. In the season before last I sold my jute at Rs. 4 a maund. Jute is called patta and all the pcople here grow it. It is white jute, the stalks and leaves of which are light green and the seed-pods globular. I have not seen any red stalked jute plant with elongated seed-pods. I have sown jute-seeds on 2½ dones this year. The cultivation this year will be from 8 to 10 annas less than last year's in our part of the sub-division. The land on which I grow jute is

neither too high nor too low, but such as water cannot accumulate there. It is an admixture of clay and sand. I manure the land destined for jute with cow-dung obtained from my cow-house in the months of Chaitra and Vaisakha. The cowdung of the year is stored up and used in the field in time. I cannot say how much manure is thrown or ought to be thrown. Manure is necessary for the growth of jute. Nobody buys manure here, but a few people who can afford it buy oilcake and manure the jute land with it. when manured with oil-cake does not need cowdung. Cow-dung in my opinion is more efficacious as manure than oil-cake. Those who cannot get cow-dung buy oil-cake. I commence ploughing the jute land from the months of Aughran and Pous. The land is also passed under the plough and ladder twice every month till Chaitra or Vaisákha, when after a good shower of rain the seeds are sown. The sowing cannot be done if the ground be not previously moistened with rain. The seeds are sown on a sunny day and the ladder is again passed to cover them up with earth. They germinate in 3 or 4 days, and when the plants are of a height of about 6 inches, the grass is weeded out with an iron weeding hook. At the same time the ill-grown plants are pulled up and thrown away.

In the month of Bhadra and Aswina, when the seed-pods begin to appear, the plants are cut. If afterwards cut, the fibre turns out to be very harsh, but if before, the fibre weighs light and is weak. After cutting, the stalks are at once steeped in bundles upon which I place the tops of the plants previously cut off, and 4 days after I head clods of earth upon the bundles. The tops with leaves are first placed in order to allow the leaves to dry in the sun and to fall upon the stalks under steeping and to rot them soon. The clods are then placed to keep the bundles below the surface of the water; a sheet deep clear water is generally preferred. I steep jute in an arm of the river where there is no current. The steeping is finished in about 15 days if there is sunshine. In wet days it takes longer to rot. The fibre is separated from the end by jerks in the water. It is then washed in the same water, dried for two days and tied up in hanks.

If the fibre is separated on a rainy day and there is no sunshine to dry it, it gets reddish. The yield per done is 3 to 5 maunds. Seeds, as a rule, are not bought and sold. A corner of the fleld is left uncut till Aughran for the seeds. It requires about a seer or a seer and a quarter of seeds for a done of land. The seeds after separation from the pods are dried for 3 or 4 days and then stored up. Seeds are not steeped in water ere sowing. Jute exhausts the soil for a second crop. I raise jute on the same plot for two years running. On the third year I grow aus paddy; after 2 years I go back to the old field. I do not sow mustard, but some people do on land destined for jute in the same year. Oversteeping weakens the fibre, understeeping makes the fibre woody. Alternate rain and sunshine favor the growth of the jute plants. Rain alone waters the plant shoot out lateral branches. growth. Bicha insect eats up the top and bark. Drought brings on the woochinga insects which cut up the young plants at the root. Hail-storm damages the plants a good deal by breaking the tops. The drought this year has damaged the early paddy plants much and the jute also, but not to the same extent. There has luckily been no hail-storm in our part of the sub-division. The weight by which jute is sold is 84 tolahs and 10 annas the seer; mesta and tosha are not grown in We do not grow jute under advances. our quarter. We sell jute to the paikars (petty dealers) and local mahajuns. Traders also come from Serajgunge to buy the fibre. Sometimes the buyers come to our houses and make their purchases. At other times we carry jute to their places of busi-The mahajuns cart away the jute. This year I sowed jute early in Vaisakha after the rains and the plants are now about 3 feet high.

Last season the price was low and the ryots did not make any profit and in some cases suffered a loss. The jute we grow here goes by the name of *dhoobree pat*. We grow good jute, but not so good as what goes by the name of Kankripara jute. In our part of the sub-division the jute plants are looking healthy.

Cost per done :-

-					Rs.	As.	P.
10 Plou	ghings			•••	5	0	0
Weeding	z, &c.		•••		2	U	0
Cutting	•••			•••	1	0	0
Separati	ng		•••		- 1	8	0
Drying		•••		•••	0	8	O
Rent	•••	•••	•••	•••	0	3	0
			Total	•••	10	3	0

No. 69.—HURRONATH SIRCAR AND ANUNDO MOHUN CHUNDER, FUREAHS (of Gossaingungs),—Goalpara, 4th June 1873.

We deal in jute. Either we buy it for cash or make advances to the ryots to cultivate it for us. When making the advances, which we do about this time, we sometimes fix the price at which the jute is to be delivered. Otherwise we make the grower give us three to five seers in excess of the quantity sold for a rupee in the market. This year we are stipulating for a fixed price of Rs. 1-8 to 1-10 per maund. This system does not, as might be supposed, induce the ryot to grow inferior jute; for, as they deal with us from year to year, it would not be to their interest to break faith The weight by which our transactions with us. are regulated is a seer of 84 tolahs 10 annas; but to the east, about Majparah, the standard weight is 80 tolahs to the seer. The hill tribes towards Majparah being Hajongs, Rabas, Cacharis and Metchs, have taken to jute cultivation on a small scale since the last two or three years only. They grow really superfine jute, very clean, though not long, and bring small quantities of it on their backs for sale to the Adis of Gossaingunge, Salmara, Luckipore, Jhunnudar, &c. These men do

not cut the plant at the root, but near the centre, so that only the finest portion of the fibre is kept. We sell the jute here to itinerant traders and rarely send it to Serajgunge. The quantity of jute exported from Gossaingunge is 5,000 maunds of very fine quality, which we bring in on ponies, pack bullocks, or bangies, and occasionally on hackery from a radius of six miles. There are no pucon roads and only one dak road. We sent our jute to Serajgunge for sale this year at a cost of Rs. 3-6 laid down there and sold it at Rs. 2-4 to 2-8. We prefer selling locally. Our transactions average about 1,000 and 400 maunds each. We would have traded more largely, had prices been better. We also trade in salt, piece goods, &c. The cultivation of this season will be from 4 to 6 annas less on both sides of the river. Some ryots on the east side of the river burnt their jute as fuel, being disgusted at the prices ruling. A beegah of fine land well cultivated should yield 5 to 7 maunds. (Anundo Mohun raises a small quantity of the fibre himself.)

No. 70.—Nesh Mahomed (of Bondber),—Goalpara, 7th June 1873.

I am an agricultural ryot and hold 10 beegahs of land at a yearly jumma of Rs. 13. Last year I grew jute on three beegahs of land. This year also I have cultivated three beegahs with the same plant. I got 16 maunds of fibre last season and sold it to the mahajun who had advanced me money, for Rs. 2-8 and 2-12 the maund. price fixed at the time of taking the advance, namely Fálguna or Chaitra, was Rs. 2-8 a maund. I got Rs. 2-12 from the itinerant traders who had come from Serajgunge. The jute sold for 2-8 and 2-12 respectively was of one and the same kind. I grow amoni pat. Jute is called koshta in our part. Ours is white jute, the stalks and leaves of which are green, and the seed-pods globular. I know red jute, the seed-pods of which are elongated. The fibre is called mesta in our part. It is ctulivated in small quantities; the fibre has a reddish color. I grow on old chur land, i. e., on soil composed of sand and clay. I have got only seven head of cattle, and consequently I do not get cow-dung sufficient to manure my lands. People manure their jute land in order to make them fertile. Jute weakens the soil as regards itself only. I therefore select a new plot on the second year—growing aus dhan on last year's jute land. Paddy grows as usual on jute land. Two or three years after, I fall back upon the old land, and grow jute thereon. The chur land upon which I grow jute has, I hear, been formed upwards of 70 years. In the season before last, I sold jute at Rs. 2 a maund to the mahajuns who advanced money, and at Rs. 8 to other buyers. The poorer ryots grow jute under advances. If the price be fixed beforehand no interest is charged, but if the price be not fixed the ryot has to sell his jute to the advancing party at Rs. 2-8, when the market price is Rs. 3 a maund.

Interest at half an anna per mensem is charged on each rupee advanced. The land is manured in the months of Mágha and Fálguna. The tillage of jute lands begins in Kartika. Occasionally mustard seed is grown on jute land, and it is after the removal of this crop that the cow-dung is put in and the land ploughed up. This land is ploughed five or seven times like paddy land, which is also weeded twice. The jute fibre I produced was five to six cubits long; the best is seven cubits. The jute we grow is called by the traders' people sholemari pat and is of good quality. We sow jute seeds in the months of Chaitra and Vaisákha. The seeds are sown broadcast on a sunny day after a rainfall; they germinate in three or four days; and after 20 or 25 or even 30 days, the grass is weeded out of the fields once and sometimes twice. If the plants are too close to each other, such as look ill-grown are pulled up . and thrown away. The sowings of Chaitra are cut in Bhádra, and those of Vaisákha, later, i. c., at the end of Bhadra or in Aswina. If the plant be cut in flowers the fibre turns out to be nice and glossy. For want of labor, I, however, cut it when it is running to seeds. Jute plants should be and are, as a rule, made up into bundles at once after cutting and steeped in bheel water. The tops of the plants, which are previously cut off, as well as jungly plants, are placed upon the bundles, in order to prevent the stalks, or at least part of them which is exposed to the sun, from getting dry. After three days or so, clods of earth are put on to make the bundles sink a little below the surface. We do not turn the bundles, while under steeping, nor do we steep them in water, which is less than waist deep. The better the water is, the finer the fibre. The steeping takes 17 or 18 days, when the stalks are well rotted, about a score of them are taken up, broken at about a cubit above the root end and the reed on the broken parts is then got rid of by jerks in the water. The remaining portion of the stalks is similarly treated. The fibre is then washed in the same sheet of water, and, after the moisture has been wrung out, is exposed to the sun on a bamboo scaffolding. It is dried for two days. If there is no sun, we try to dry it in the air; but as we have no room, the fibre rots and assumes a reddish color, which injuriously affects its selling value. This is the case with white jute. In the case of the red jute, the stalks are broken at the thin or top end, and the fibre separated from that end by jerks. It is said that the fibre is more easily separated from the top than from the root end. Oversteeping injures the strength and spoils the color of the fibre. Understeeping causes the bark to adhere to the Bad water produces bad color. If aichapocka attacks the jute plants, the parts attacked turn out to be specky. Drought has nearly destroyed the jute plants this year. Owing to the low prices of last season, the cultivation has been reduced by at least 4 annas and with the droughts the yield will be half of last year's crop. Last year the cultivation of jute was the largest heretofore known in the 20 years or more in which it has been carried on in this part of

the country. The cost of cultivating a beegah is as follows:—

	-			*	Rs.	A,	P.
Thirty pl	oughs, at	4 as	. each		7	8	0
Weeding		men	•, •		1	14	0
Cutting	• •		• •		1	14	()
Separatin	g, &c.,		• •		1	14	0
Drying a	nd tying	up	• •		0	15	0
Rent	• •	• •	• •	• •	U	12	U
			Total		14	13	0

Cow-dung is not bought and sold. We do not use oil-cake. The plants which are reserved for seed are cut in Aswina and after 4 or 5 days' drying the seeds are stored up; being sold, at the ryot's choice at two to four pice the seer. Three seers of seed will suffice for a beegah. The weight by which jute is sold is a seer of 87 tolahs.

No. 71.—Shaik Noshoo (of Rohumori),—Goalpara, 7th June 1873.

I cultivate 5 beegahs with jute. Last year when I cultivated the same extent of land, I sold my jute at Rs. 4-2 to 4-4 to itinerant traders and mahajuns in the months of September and November. My fibre was very good. I have 20 cows, and I manure a beegah of land near my house by pasturing them there. I remove my cow-house every year close to the patch of land intended for jute cultivation. I do not manure paddy land nor land for other crops. From manured land I get a finer yield, that is, about 7 maunds per beegah. Plants 8 hands high will give this yield. I commence sowing in Chaitra and finish in Vaisákha. The plants of Chaitra sowing are now waist-high, although stunted by the drought. In ordinary years they would have been as high as my head (say 51 to 6 feet). The Chaitra sowings are made on low lying land, i.e., the slopes of bheel, because, I need cut this jute before the lands are inundated. Moreover, the low lands are moist, and I can plough and sow them independently of rain. The higher lands being parched and dry, I have to wait for rain before I can sow. The Vaisakha sowing was not delayed by rain, but there was afterwards a drought which lasted nearly a month, and has destroyed much of my crop, and nearly all of it in parts. Where the land was unduly sandy, the plants are entirely withered, but they have stood the weather tolerably well where the soil had a good proportion of clay. Hail-storm did some harm to the early sowings. One way or another half of my jute has been destroyed this season. I keep one servant whom I give Rs. 22 annually with board. In the cold weather, I raise no crops on the lands where I have grown jute. Jute exhausts the soil. It would not grow well at all

on the same land two years running. After one crop, land should not be cultivated with jute for two or three years. I sow paddy the year after jute. The following year I put rape-seed; sometimes I raise a crop of tobacco. I then let the land lie fallow for two years; although some do for one year only. After this I sow a crop of paddy and the next year jute. This is the system usually adopted in this part of the country. I reap my jute as the young seed-pods begin to appear, which is the best time. Cutting earlier gives a smaller yield, although the jute looks nice. Cutting late causes the fibre to retain much of the bark. The black speck on jute I have seen since my childhood; but I have never been able to trace the cause of it. After cutting I make up the stalks into bundles and steep them in bheels, and in the still parts of a khal connected with the river. The latter gives the best jute, if there is no silt in the water. If there is silt, and it gets to the fibre, the jute becomes blackish or grey. After placing the stalks in the water, I cover them with the tops of the jute plants and with jungly plants to prevent such parts of the stalks, as may be above the surface, from drying up. Two or three days later I keep on the bundles clods of earth to sink them still lower. If I placed the clods at the outset, the bundles would sink at once, which would not answer. I can give no reasons for this part of the process of steeping. I make up the bundles by placing the root or thick end of one stalk with the top or thin end of the other, and by fastening them to a bamboo, the bundles forming a sort of raft. The best depth of water to steep jute in is up to a man's waist. In shallow water the process of rotting cannot be complete; and the out-turn of the jute is in every way unsatisfactory. After sufficient steeping, the fibre is prepared in the usual way. Should rain be falling, and there be no sunshine at the time for preparation I place the bundles of fibre on mats on the floor of my house to be dried there. If the sun appears in about two days or so, no harm will have accrued; but if dull weather continues the jute will begin to rot and turn of a reddish color. I choose my seeds from the ill-grown plants. I know of dhola pat (white jute). I also know of lal pat (red jute) which is grown in very small quantities. The former has a round seed-pod, and its seeds are of a reddish color. The latter is long-podded, and its seeds are blackish. plants of both varieties grow to the same height; but never having cultivated the red jute I can say nothing about the fibre. Sometimes I take advances from the mahajuns on interest at one to one and a half anna per rupee per month; my produce to be delivered to them at the market rate of the day. I sell by the maund of 84 tolahs 10 annas to the seer, and buy here at 87 tolahs to the seer.

APPENDIX C.

Statement showing the localities in some districts in Bengal, where Jute is grown, with the botanical names assigned to each description by the Superintendent, Botanic Gardens, after an experimental cultivation of the plant.

Division.	District.	Place whence received.	Number in the Jute Com- missioner's register.	Names of Pat.	Botanical result.	REMARKS
	Burdwan	Culna Ditto	58 59	Nalita pat Lal bomi pat	Corchorus capsularis.	
M.		Ditto	• 60 61	Sada bomi pat Mesta pat	Hibiscus cannabina.	
Burdwan.	Midnapore		52	Bito pat	Corchorus olitorius.	
Bu			53 54	Teeta pat	. capsularis. Hibiscus cannabins.	
	Hooghly		13	T	Corchorus olitorius.	
,	24-Pergunnaha	i .	10	Di1 :-		
	or I or Burniana	Suburbs	14	Kalce kustooree		
		Ditto	15 16	Dhunchia Ghrito kanchan	Aeschynemone cannabina. Corchorus olitorius (red).	
- [Ditto Ditto	18 19	Sanchi ranga	Corchorus capsularis.	
ė		Baraset	28	Luckipore or dholi	", olitorius.	İ
Presidency.	•	Ditto Ditto	27 28	Bange pat Lucki fool bogi pat		
£)		Ditto	29 30	Mesta	" capsularis.	
4		Ditto	30 31	Amun dholi nat	" olitorius.	
ı		Barriporo Ditto	32 33	Dosce pat	"	1
- 1		Ditto	34	Mesta	,, capsularis. Hibiscus cannabina.	
- 1		Diamond Harbour	35	Dhunchey	Aoschynomone cannabina.	
l	Jessore	*********	11 12	Mesta		Í
			21	Mitha pat Desee pat	,, capsularis.	
			22 23	Sada pat	** **	
			24	Megnal pat	" clitorius.	1
		Hingerpara	25 81	Baga sunn Teeta pat		1
,	Moorshedabad	}	47	-	COLLEGICAS OFFICIALIS.	
- [arooran(xiaoa)	Ditto	48	Sanchi pat Meghual pat	" " "	
- 1		Ditto Ditto	49 50	Hemtara pat	" capsularia. Hibiscus cannabina.	
		Ditto	51	Sunn	Crotalaria juncea.	
- 1	Dinagepore		98	Amana pat		
			99 100	Hemtia pat	Corchorus capsularis.	
į,			101	Kosta	Hibiscus cannabina.	İ
- 1			102	Gopal choq	Corchorus capsularis.	
		Sontaporo	103 101	Kala naricha Hementia pat	1	
- 1			105	Dhala nat madhai	,, olitorius.	
1			106 107	Mesta Cheral naricha	Hibiscus cannabina.	
ģ			108	Juti bhadoga		
d			109	Lal pat, madhai, also called bunmuchki.	,", olitorius _ų	
Rajshahye.		Gungaramporo	110	Jati homantia	., capsularis.	
A		,	111 112	" bhadoga	91	
			113	Loha or jati	, ontorus. , capsularis.	
		Ranisankal	114	Marua	olitorius.	İ
		Ditto	115	Mesta	Hibiscus cannabira.	1
		Thakurgaon	116	Tati	Corchorus capsularis.	
			117	Marna, bunmuchki or	" olitorius.	
			118	Mesta	Hibiscus cannabina.	
	Maldah	*******	83	Dhamai, nalia pat	Corchorus capsularis.	
	Rajshahye	•••••	39	Sunn	Crotalaria juncea.	
			40 41	Mesta	Corchorus olitorius.	
	70	·			·	
Ч	Pubna	•••••	71 72	Satnala koshta Burra koshta	" olitorius.	
			73	Chota koshta	,, capsularis.	
			86 87	Burra pata Deswal))))))	
		- 11 A. 種化。	88	Choro pat	Crotalaria juncoa.	
- 1		3	20	sunn	Organia laucos.	1

Division	District.		Place whence received.	Number in the Jute Com- missioner's registor.	Names of Pat.	Botanical result.	Remarks.
	Dacca		. пини	63	Sunn	Crotalaria junces Hibiscus cannabina.	Dacca.
				64 65	Mesta	n n	
			Moonshegunge Ditto	75 · 77	Koshta Mesta	Corchorus capsularis. Hibiscus cannabina.	. •
				119 120	Bhowal seed, No. 1 Ditto, No. 2	Corchorus capsularis.	
			Moonsheegunge	121 122	Kaligunge, No. 1 Ditto, No. 2	Corchorus capsularis.	
		•		123	White koshta)))) ()))	
				124 125	Red koshta Backrabad	33 39 34 35 \$	
				127	Mondria bhowal)))) ^R	
				128 129	Kaliadee pat Neel chur pat)))1	
Dacca.				130	Baboo chur	10 ps 30 ps	
Sac	i (131 132	Cow chung Mirzapore pat	n n	
Ħ				133	Aralia pat)) 10 2))d	
				184	Koshta (amun)	39	
		•		135 136	Ditto (aus) Mesta	" olitorius. Hiblscus cannabina.	
	Furreedpore	•••	*******	137	Bilan 4	Corchorus capsularis.	
				138 139	Bugi Desee	" olitorius. " capsularis.	
				140	Mesta	Hibiscus cannabina.	
	Backergunge	***	*******	93	Bugi pat	Corchorus olitorius.	
				94 95	Desce pat Snda mesta	,, capsularis. Hibiscus cannabina.	
				96 97	Iall "	Crotalaria junces.	
	Mymensing			68		Corchorus olitorius.	
	C mymensing	***	124.21.22	(17	Patlai	corenorus ontorius. ., capsalaris.	
				68	Amos		
				69 70	Mesta Kooch murdan pat	Hibiscus cannabina. Corchorus capsularis.	
	}			142	Dhobsur	·	
				143 144	Mettee Shomboogunge	., olitorius.	
re.			,				
Blaugulpore.	Monghyr	•••	*******	45 46	Sarya suson Patnai	Crotalarıa juncea. Hibiscus.	
371	Purnenh			78	Patua 🎉	Corchorus capsularis.	
BE	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	***	**1******	80	Chundona	Hibiscus cannabina.	
رنع							
81	Hazarcebough		••••	55	White kodrum	11	
Nagpore.				56 57	Red kodrum or patwah Sanniel or suun	subdarifa. Crotalaria juncea.	
	Singbhoom			90	Mitha pat	Corchorus olitorius.	
Chota	MINATION	"		91	Teeta maragoote	., capsularis.	
57)					Tenga mara	Hibiscus cannabina.	
1			1	146	Tita mara,	Corchorus capsularis.	
- 1					.,,		

APPENDIX D.

Form of a Contract entered into by a Jute-growing Ryot at the time of taking advances in the 24-Pergunnahs.

क्री के ने प्रवा

মহামহিন জীযুত

মভাশয় বরাবরেষু।

লিখিতং জ্বী

কিন্তু কার্যাণ্ড্রাণে আমি মহাশবের নিকট কোং চলন শীক্তা ২৪, টাকা পাট্মোলা কর্জ্ঞ থিত পত্রমিদং কার্যাণ্ড্রাণে আমি মহাশবের নিকট কোং চলন শীক্তা ২৪, টাকা পাট্মোলা অগ্রিম দাদন
লইলাম উক্ত টাকার কিঃ মণ ২১ ছুই টাকার হিসাবে আগামী সন ১২৭৯ সালের মাহ পৌষ মাহার
১২/ মণ পাট উত্তম শুক্না করিয়া নিজ থবচে মহাশবের বারইপুরের বাটতে পৌছিয়া দিন। যদি
নিয়্মমত পাট আদার না করি তবে উক্ত সময়ে বিক্রীত বাজার দরে উক্ত ১২/ মণ পাটের মুলা
স্থাসহ আদায় করিব। এই নিয়মে নগদ টাকা দন্তবদন্ত বুবিয়া পাইয়া পাট মোলা থত লিখিয়া দিলাম।
ইতি কার্ত্তিক সন ১২৭৯।

SREE SREE ISSUR.

To the high in dignity

The full of grace.

WRITTEN by Sree , who enters into an agreement for the sale of jute. I do hereby take an advance of Rs. 24, and agree to deliver at my own expense to your house at Barripore in the month of Pous next 1279 (B. S.) twelve maunds of well-dried jute at the rate of Rs. 2 per maund. If I fail to deliver the jute according to agreement, then I shall pay the value of the said twelve maunds of jute with interest at the market price of the aforesaid time. Under this condition I execute this bond after taking the moncy in cash, hand to hand.

Dated

Kartika, 1279 B.S.

Copy of a Plaint filed in the Court of the Moonsiff of Jamalpore, in the Mymensing District, for breach of a contract for the delivery of Jute.

808 बर १८१० मन । मन १८९० |

(काढे आमान्छ।

(ठोकी कामानभूततत पून्यको आपानक।

(इंडि जामानक (अनीत (माकप्रमा।

1 Pars

প্রাথনিকা ওলদে মৃত ক্কীর মামুদ ধলিকা সাকিন টিকাজালী পং পাতিলাদর এঃ মুন্দেকী জামালপুর।

विवामी।

ছিবি মামুদ সন্ধার সাক্ষিম আমথাওয়া পং পাতিলাদত এঃ মুনসেফী ভাষালপুর।
মঃ ৩৭।।০ অনে দাবীর পরিষাণ

প্রভিবাদী প্রভিটাকার ।।৫ সের দরে ৯/৫ সের কোন্টার মূল্য মং ১৫, টাকা ১২৭৭ সমের ১৬ কালগুল এক এও সাট্টা দারা অগ্রিম লইরা ১২৭৮ সমের আশ্বিদ মাসে কোন্টা দেওরার অভীকার করিয়াছিল ভাষা লা দেওরার প্রভিবাদির দেওরা সাট্টাপত্রের শর্তমভে উক্ত সনের আশ্বিদ মাসের বাজার দর প্রভিবাদ মাসের মং ৩৭।।০ আলা ও আদালভ ব্যয় সুদস্য পাইবার দাওরা। ইতি স্ব ১২৮০ স্ব ভারিখ ১০ বৈশাশ।

P

এই দালিশের ফরিয়াদী আমি পচাধলিফা টহা জানাইডেছি বে এই আর্জীতে যাহা দেখা আছে ডাহা আমার জান ও বিশ্বাসমতে সঙ্য। ইতি সম ১২৮০ সন ডারিখ ১০ বৈশাধ, জামালপুর বোকামে সভাত। দশুধং হইল ইতি।

নিং। পচাথলিকা।

Copy of a Contract entered into at Jamalpore, in the Mymensing District, for delivery of Jule.

মহামহিম 🕮 হৃত পাচাথলিকা। ব্রাব্রেষ। क्रि कित्यायुष्ट जर्कात्। जार कामबारका।

লিখিতং জীছিরিমামুদ সরদার সাকিম আমখাগুরা কোই। যার সাট্টাপত্রমিদং স্ম ১২৭৭ সম সালাব্দে লিখনং কার্যাঞ্চাগে আমি আপনার নিকট মবলগে ১৫১ টাকা কোষ্টার যার সাট্টা লইলাম ফীঃ টাকাতে দর ।।৫ সের হিসাবে একুনে ৯।৫ নর মণ পনের সের স্কুক্তিসমেত কোষ্টা সমস্ত আদার আখিন মাসে একযোগে কোষ্টা দিরা শোধ করিব। করার খেলাক করি কোষ্টা বিক্রীর নিশা করিব। এতদার্থে সাট্টাপত্র লিখিয়া দিলাম। ইতি সন সদর ভারিখ ১৬ ফালগুন।

জীনেদাথলিকা। সাকিন আমধাওয়া। ইস্দী। শ্রীকালেক মামুদ। সাং আমপুর। শ্রীকানন্দকুমার সুর। সাং ধলীলপুর।

Translation of the above documents.

Small Cause Court Class Case.—Case No. 404 of 1873.
In the Court of Moonsiff, Chowkee Jamalpore.

POCHA KHOLIPHA, son of FUREER MAHOMED KHOLIPHA, inhabitant of Tickajali, pergunnah Patiladaha, Station Jamalpore Moonsiffee ...

Plaintiff,

versus

SHIREE MAHOMED SIRDAR, inhabitant of Amkhaoa, pergunnah Patiladaha, Station Jamalpore Moonsiffee

Defendant.

Suit laid at Rs. 37-8.

The defendant executed a sattapatra (agreement) on the 16th Falgoon 1277 B. S., binding himself to deliver 9 maunds 5 seers of jute in Aswina of 1278 B. S., in consideration of the advance of Rs. 15 taken by him as the amount of value for the same at the rate of twenty-five seers per rupee. The defendant having failed to deliver that jute, this claim has been brought, in accordance with the terms of his sattapatra, for recovery of the sum of Rs. 37-3, being the amount of value thereof due at the bazar rate of 25 seers per rupee prevailing in Aswina of the year 1278, together with costs and interest. Dated 10th Vaishákha 1280 B. S.

I, Pocha Kholipha, the plaintiff in this suit, do declare that what is stated in this plaint is true to the best of my knowledge and belief. This verification is signed at Jamalpore on the 10th Vaisákha 1280 B. S.

POCHA KHOLIPHA.

To

Pocha Kholipha of high dignity.

SHIBER MAROKED SIRDAR, Inhabitant of Amkhaoa.

I, Shire Mahomed Sirdar, inhabitant of Amkhaoa, do execute this sattapatra in 1277 B. S. I do hereby take from you the advance of Rs. 15 for supplying jute. I do agree and stipulate by this sattapatra to liquidate that amount by means of delivering at once 9 maunds and 15 seers of jute, at the rate of 25 seers per rupee, and in default I will be responsible. Dated 16th Falgoon 1277 B.S.

WITNESS,

SREE NEDHA KHOLIPHA,

Inhabitant of Amkhaoa.

SREE ALEK MAHOMED,

Inhabitant of Ampore.

SREE ANUNDO COOMAR BOSE,

Inhabitant of Khalilpore.

Copy of a plaint filed in the Court of the Moonsiff of Jamalpore, in the Mymensing District, for breach of a contract for the delivery of Jute.

कारे जामानड

७३० मः |---मन ३४**१**२

চৌকী জামালপুরের মুনসেফী আদালত।

र्या ही ।

পরবাম সেথ ওলদে মৃত মেক সেখ সাকীন কাজালাপাড়া পং পাতিলাদহ এ: মুনসেফী জামালপুর বিবাদী

নামাজু সর্দার এলদে মৃত মেলা স্থার সাকীন কাজালাপাড়া পথ পাতিলাদহ এ: মুনসেফী জামালপুর।

बः ৬০১ টাকা আদালত বায় সুদ সহ পাইবার দাওয়া।

ছেত।

বিবাদী প্রতি টাকায় ৩০ সের কোন্তা দর স্থিরতর ১৫/মণ কোন্তার মূল্য ২০, টাকা ১২৭৭ সনের ১২ চৈত্র এক থণ্ড সাট্টাঘারা আমার নিকট হইতে অগ্রিম লইরা ১২৭৮ সনের ৩০ ভাত্র কোন্তা দেওয়ার অস্ট্রীকার করিয়াছিল ভাষা না দেওয়ায় ভাষার দেওয়। সাট্টাপত্রের শান্তানুযায়ি উক্ত সনের ভাত্র মাসের বাজার দর প্রতি মণ ৪, টাকা হারে ১৫, মণ কোন্তার মূল্য মঃ ৬০, টাকা আদালভ বায় মুদ্দ সহ বিবাদী স্থানে না যারুপে পাইবার অত্বান ব্লি ইভি সম ১২৭৯ সন ভারিথ ১৬ অগ্রাহয়ণ।

আমি এই আরজার লিখিত ফরিয়াদী ইকা জানাইতেচি যে এই আরজাতে যাকা লিখা ছইল তাকা আমার জ্ঞান ও বিশ্বাসমতে সভাসন ১২৭৯ সাল তারিখ ১৬ অগ্রহারণ জামালপুর মোকামে ছত্ত্বত হইল।

নিং। 🖲 প্রবাস্থ সেখ।

Copy of a Contract entered into at Jamalpore, in the Mymensing District, for delivery of Jute.

৮)0 मश | ১৮৭২ সন |

३५५२ अस ।

বরাবর জীযুত পরবান্ত দেখ।

वक्षवदः स्रु।

লিখিতং জ্বী নামাঞ্ সোনার ওলদে মেন্দা সেথ সাকিন কাজলাপ। ড়া পরগমে পাড়িলাদছ ইফৌসন দেওরানগঞ্জ কোন্তারপর সাট্টাপত্রমিদং সন ১২৪৭ সালান্দে লিখনং কার্যাণ্ডাগে আমি আপনার নিকট হুইতে কোন্তারপর ববলগে ২০ কুড়ি টাকা কর্জ্ব লইলাম ইছার কোন্তা প্রতি টাকার ৪০ তিশ শের ছিসাবে বোঙরাজি ১৫ / মণ ফোন্তা সন ১২৭৮ সমের ৩০ ভাজে ডারিখে একযোগে একমাপে কোন্তা দিরা বিশ্বাস মন্ত্র আদারপূর্বক এই সাট্টাপত্র ওয়াপেষ লইব। এক্যোগে একমাপে কোন্তা না দিয়া ক্রের্জাদার করি ভবে যথন যে কোন্তা আদার করিব ডৎকালীন এই সাট্টার পৃত্তে ওয়াশীল লিখিয়া দিব মোডাবেক করার কোষ্টা আদার মা করিলে ঐ সংমর অম্যান্য মহাত্রের বিক্রী সুরত আপনার কোষ্টার বিক্রীর ক্ষতি সমেড আদার করিব এই সাষ্টার পৃষ্ঠের ওয়াশীল ভিন্ন আলাছিদ। রুসীদ কিন্তা প্রমাণ পেষ করি ভাছা অসিদ্ধ এভদার্থে কোষ্টারপর সাষ্টাপত্র লিখিয়া দিলাম ইতি সন সদর ভারিথ ১২ চৈত্র।

हेगामी।

শবিশীদা। আটি নজুমদীৰ সৰ্দার। সাকিন টাকাজাদী।

জী কানাই সেধ।

সাকিন কাজলাপাড়া।

জীমনী প্রধান।

সাং ঐ।

জীঝাটা সেধ।

সাং টাকাজালী।

Translation of the above documents.

SMALL CAUSE COURT CASE No. 810 of 1872. In the Court of the Moonsiff, Chowkee Jamalpore.

Porbassoo Sheik, son of Nek Sheik, deceased, inhabitant of Kajlapara, pergunnah Patiladha, Station Jamalpore Moonsiffee

Plaintiff,

NAMAJOO SIRDAR, son of MENDA SIRDAR, deccased, inhabitant of Kajlapara, pergunnah Patiladha, Station Jamalpore Moonsiffee

Defendant.

Claim for recovery of Rs. 60 with costs and interest.

In consideration of the sum of Rs. 20 received by the defendant as an advance under a sattapatra on the 12th Chaitra 1277 B. S., for the amount of value for 15 maunds of jute, at the rate of 30 seers per rupee, he stipulated to deliver the same on the 30th Bhadra 1278 B. S. In consequence of his failure to deliver that jute, I am justly entitled to demand from the defendant, in pursuance of the terms of above sattapatra executed by him, the sum of Rs. 60, being the amount of value for 15 maunds of jute at the bazaar rate of Rs. 4 per maund prevailing in Bhadra of the year 1278 B. S., together with costs and interest. Dated Aughran 1279.

1, the plaintiff in this plaint, do declare that what is stated in it is true to the best of my

information and belief. This is signed at Jamalpore on the 16th Aughran 1279 B. S.

PORBASSOO SHEIK.

NAMAJOO SONAR.

To.

Porbassoo Sheik.

I, Namajoo Sonar, son of Menda Sheik, deceased, inhabitant of Kajlapara, pergunnah Patilauha, Station Dewangune, do execute this sattapatra in 1277 B.S. I do hereby take loan of Rs. 20 from you as advance on account of the supply of jute. I do stipulate to take back this sattapatra after realization of the full amount by means of delivering, on the 30th Bhadra 1278 B. S., at once and in one and the same measure the total quantity of 15 maunds of jute, at the rate of 30 seers per rupce. If I deliver that jute gradually instead of at once and in one and the same measure, I will cause the same, whenever any quantity of it will be delivered by me, to be entered on the back of this sattapatra and credited on my account. I do agree by this sattapatra that if I fail to deliver that jute according to its terms, I will pay the amount of advance, together with the damages for any loss that you would incur, at the rate at which the other mahajuns (the jute merchants) would sell their jute in that year. I do further agree by this sattapatra that if I produce any other receipt or proof except the entry on the back of this instrument, it will be null and void. Dated 12th Chaitra 1277 B.S.

WITNESS,

The writer, SREE Nojoo Maddin Sirdar,
Inhabitant of Tickajali.

SREE KANAI SHAIKH,

Inhabitant of Kajlapara.

SREE MONEB PRADHAN,

Inhabitant of Kajlapara.

SREB JHATA SHAIKH,

Inhabitant of Tickajah.

APPENDIX E.

Statement showing the price of food-grains and unskilled labor in the districts comprising the Provinces of Bengal, from the year 1861 to 1872.

DIAIBIOR.	Districts.			1861.	1862.	1863.	1864.	1365.	1866.	1867.	1868.	1869.	1870.	1871.	1878.
<u> </u>	Burdwaa	Common rice	 laborer	20.526 Rs. A. P. 0 3 3	24.260 Bs. A. P. 0 8 8	29.357 Bs. A. P. 0 3 3	27.992 Rs. A. P. 0 3 3	26125 Rs. A. P. 0 3 3	9.707 Rs. A. P. 0 3 3	19'661 Rs. A. P. U 3 3	27.992 Rs. A. P. 0 3 3	25.659 Bs. A. P. 0 3 3	25.192 Bs. A. P. 0 3 3	24.690	22-006
	Bancoorah	Common rice Pulses	 Isborer	41.989 14.811 Be. A. P. 0 2 0	47.905 17.552 Rs. A. P. 0 2 0	54294 31549 Rs. A. P. 0 2 6	89.131 20.468 Rs. A. P. 0 2 6	87.264 19.594 Rs. A. P. 0 2 6	16:794 12:362 Rs. A. P. 0 2 6	29.857 14.928 Rs. A. P. 0 2 6	31.724 15.803 Bs. A. P. 0 2 6	32.424 14.928 Rs. A. P. 0 2 6	83:591 13:062 Bs. A. P. 0, 2, 6	No data.	rje
WAR.	Beerbhoom	Common rice	 Isborer	Rs. A. P.	Rs. A. P.	35'924 Bs. A. P. 0 2 0	27.409 15.661 Bs. A. P. 0 2 0	21:518 18:601 B3. A. P. 0 2 0	11:196 10:030 Rs. A. P. 0 2 0	23.093 14.223 Rs. A. P. 0 2 0	27.642 20.060 Bs. A. P.	18-135 17-319 Rs. A. P. 0 2 0	22-659 9-5-14 Rs. A. P. 0 2 0	ž	dat a ,
INOR.	Midnapore	Common rice	 laborer	\$1.957 15.254 Rs. A. P. 0 1 9	31.724 14.555 Rs. A. P. 0 1 9	32.190 15/770 Rs. A. P.	31.491 15.814 Rs. A. P. 0 2 0	22.626 14.042 Rs. A. P. 0 1 9	9.564 16.217 Rs. A. P. 0 2 0	20.060 11.803 Rs. A. P. 0 z 0	23 550 15:452 Bs. A. P. 0 2 0	20.526 13:715 Rs. A. P. 0 2 3	23:327 11:523 Rs. A. P. 0 2 3	00.43	00.EZ
	Hooghly	Commen rice	 laborer	23 · 20 · 88. A. P.	21 19:4 Rs. A. P. 0 2 8	20 18.4 Bs. A. P. 0 2 8	22 17.2 Rs. A. P. 0 3 2	19 18 18. A. P. 0 3 2	16 19:200 Rs. A. P. 0 3 2	18 19 Bs. A. P. 0 5 2	20° 15°400 Bs. A. P. 0 3 2	21 15:690 Rs. A. P. 0 3 2	22 16:200 Be. A. P. 0 3 2	16-842	16-348
	Howrah	Common rice Pulses Wages of unskilled laborer	 laborer	16-528 Rs. A. P. 0 5 0	15°366 Bs. A. P. 0 6 0	11-225 Bs. A. P. 0 5 0	20'411 · Rs. A. P. 0 5 0	17.348 Rs. A. P.	18-3/19 Rs. A. P. 0 6 0	20'411 Rs. A. P. 0 5 0	20.411 Rs. A.P. 0 5 0	22:451 Bs. A. P. 0 5 0	24.493 Bs. A. P. 0 5 0	13-383	16.00
~	Calcutta, Howrah	Common rice	 laborer	19-553 18-230 Rs. A. P.	19.558 17.516 Rs. A. P. 0 8 2	19:532 19:554 Rs. A. P.	15·129 15·623 Rs. A. P. 0 3 2	12:570 13:152 Es. A. P. 0 3 2	11.465 11.756 Rs. A. P.	16:760 16:759 Rs. A. P. 0 3 2	14.897 17.342 Bs. A. P. 0 8 2	15.129 16.659 Rs. A. P. 0 8 2	15.529 15713 Rs. A. P.	No data	iata.
IDEACT.	Nuddes, Kishnaghur	Common rice Pulses Wages of unskilled laborer	 laborer	28:327 25:92 Bs. A. P. 0 2 8	26.125 27.059 Bs. A. P. 0 2 8	24.260 27.059 Bs. A. P. 0 2 8	17.727 21.460 Rs. A. P. 0 2 8	11.196 16.794 Rs. A. P. 0 & 0	18:062 16:017 Bs. A. P. 0 3 2	13.905 16.527 Bs. A. P. 0 3 2	25.508 25.503 Bs. A. P.	22:393 19:594 Rs. A. P. 0 3 2	17.727 16.328 Bs. A. P.	20.00	00.02
aan1	Jesore, Kotechandpore	re Common rice Pulses	 laborer	19-039 25-762 Rs. A. P. 0 2 8	19.039 25.699 Rs. A. P. 0 2 8	10.039 23.530 Ba. A. P.	19.639 24.515 Bs. A. P. 0 z 8	19988 27.944 Re. A. P. 0 2 8	11.416 24.273 Bs. A. P. 0 2 8	20.057 23.798 Bs. A. P. 0 2 8	19.039 23.324 Bs. A. P. 0 2 8	19°039 24.988 Bs. A. P. 0 2 8	19.039 25.728 Rs. A. P. 0 2 8	24125	5 6.00 0
	24-Pergunnahs, Khider- pore.	Common rice Fulces	 laborer	18:661 17:494 Bs. A. P. 0 4 0	18 681 17.494 Ba. A. P. 0 4 0	16.561 15.851 Rs. A. P. 0 4 0	14-928 15-861 Rs. A. P. 0 4 0	16:561 14:345 Bs. A. P. 0 5 4	13:905 107:30 Bs. A. P. 0 4 0	14.928 13.062 Bs. A. P. 0 4 0	18-661 15-395 Rs. A. P. 0 \$ 0	16794 12129 Ra. A. P. 0 4 0	18'661 11'662 Re. A. P. 0 \$ 0	11	9 8

24.936 000.62 979.7 15.236 93.63 53 8.8 80-75 1872. Statement showing the price of food-grains and unskilled labor in the districts comprising the Provinces of Benyal from the year 1861 to 1872.—(Continued.) 99-6g 8.8 23.411 20.00 41.25 35.58 23.5 83 18 Ę 24'493 36740 Bs. A. P. 0 2 8 26196 16794 Ra. A. P. 0 \$ 0 22:393 39:563 Be. A. P. 0 2 1 1870. 25:367 29:450 Bs. A. P. 0 2 8 23:327 16:056 Ba. A. P. 0 3 2 21.693 15.841 Ra. A. P. 0 2 8 26::71 15:395 Bs. A. P. 0 3 0 22-393 18-341 Ba. A. P. 0 2 1 136. 20-994 17-844 Rs. A. P. 0 2 8 30.571 11.196 Bs. A. P. 88 17.144 13.062 Bs. A. P. 0 2 8 23-310 14-694 Ba. A. P. 0 2 6 18:661 16:211 A. P. 3 2 1867 13:995 23:209 Rs. A. P. 0 2 8 12:829 13:062 Rs. A. P. 0 2 1 16:995 11:196 Rs. A. P. 0 2 6 18.661 17.922 A. P. 11-225 18-751 A. P. 6 0 10:730 10:063 A. P. 2 1 7.464 13:995 A. P. 20:994 27:293 A. P. 1566. 13:995 20:410 B.s. A. P. 0 2 8 14-928 12-129 Rs. A. P. 0 2 1 13:995 9797 Ba. A. P. 0 2 0 10:497 14:742 B8. A. P. 0 2 11 14740 17.083 A. P. 8 0 14-928 17-533 A. P. 2 8 Š. 31:491 9:007 Be, A. P. 0 2:10 11.196 17.260 Bs. A. P. 0 2 8 27-392 12-129 Bs. A. P. 0 2 1 20'994 26'573 Bs. A. P. 0 2 11 23-217 22-961 Ba. A. P. 0 4 6 20.526 18.348 Rs. A. P. 0 2 3 Rs. A. P. 30'489 30'489 Rs. A. P. 0 2 6 歪 84-991 12-596 Re. A. P. 0 2 0 20:094 29:125 Rs. A. P. 0 2 8 29-557 13-062 Bs. A. P. 0 1 7 27.059 40.589 Rs. A. P. 0 3 2 25.192 19:309 Bs. A. P. 0 2 3 20°857 32°658 Ba. A. P. 0 2 0 30.616 46.114 Bs. A. P. 0 2 6 Rs. A. P. 0 4 0 27-300 16-838 3. A. P. 0 4 0 1863. 26-242 35:491 Bs. A. P. 0 2 8 32.658 14.928 Ra. A. P. 0 1 7 31'491 11'196 Rs. A. P. 0 2 0 27:292 37:136 Bs. A. P. 0 3 2 Ba. A. P. 82-918 24-492 Re. A. P. 0 S 6 27.059 16.100 8. A. P. 0 2 0 29-857 39-656 Bs. A. P. 0 2 3 39-687 43-468 Rs. A. P. 0 2 6 \$4.991 11.196 Be, A. P. 0 2 0 28.925 36.111 B. A. P. 0 8 2 32.658 14.928 Rs. A. P. 0 1 7 Bs. A. P. 25-213 A. P. 198 Wages of unakilled laborer Wages of unskilled laborer : i : : Wages of unskilled Wages of unskilled Wages of unskilled Wages of unskilled unskilled Wages of unskilled unskilled Common rice Pulses ... Common rice Pulses ... Common rice Pulses ... : 2 **원** : Berham Backergunge, Burisaul Rajshahye, Bauleah ፥ Ë Districts. Moorshedabad, E pore. : Dinagepore Maldah Pubna Decog DIVISION.

85	22.00	\$7.647	99.92	Ħ	27.12	27.042	data.	• data,	18:00	18:50	17.5
3 3	27.826	919.43	ន	83	99.75	27-042	ž	N N	25.55	\$6 \$6	6 1
20.528 11.963 Ba. A. P.	27.992 16.061 Rs. A. P. 0 4 0	26125 12246 Br. A. P. 0 4 0	16-328 18-657 Rs. A. P. 0 0 0	20.080 15.614 Bs. A. P 0 4 0	21'50 18'66 Ba. A. P. 0 4 0	20:526 11:776 Ba. A. P. 0 4 0	27.171 9-503 Ba. A. P. 0 5 5	26-421 16-781 Ra. A. P. 0 1 5	24-948 29-007 Bs. A. P. 0 2 0	20.526 24.726 Rs. A. P. 0 2 0	22-708 53-069 Rs. A. P. 0 1 6
19:394 11:569 Rs. A. P. 0 8 6	23:327 10:577 Ra. A. P. 0 4 0	17.494 12.246 Bs. A. P. 0 4 0	14.514 14.218 Bs. A. P.	19:127 17:961 Bs. A. P. 0 4 0	1775 1642 Bs. A. P. 0 4 0	20.526 11.943 Rs. A. P. 0 4 0	27.171 10.460 Bs. A. P. 0 5 3	20-524 16-705 Bs. A. P. 0 1 5	16:41 18:451 Rt. A. P. 0 2 0	14.928 15.861 B.S. A. P. 0 2 0	16 838 51 1128 Rs. A. P. 0 1 S
18'661 18'435 Rs. A. P. 0 3 4	20.760 8.630 Bs. A. P. 0 4 0	28-925 12-012 Rs. A. P. 0 4 0	19-729 16-840 Rs. A. P. 0 6 0	22:160 17:859 Bs. A. P. U. 4 0	23.75 16.68 Bs. A. P. 0 4 0	22°393 11°383 Bs. A. J. 0 4 0	27.171 10.460 Rs. A. P. 0 5 S	94-811 85-186 Rs. A. P. 0 1 5	27.781 31.548 Bs. A. P. 0 2 0	24.260 24.726 Bs. A. P. 0 2 0	21.451 61.234 Rs. A. P. 0 1 3
22:393 15:115 Re. A. P. 0 8 2	24.260 12'962 Rs. A. P. 0 4 0	21:460 11:429 Bs. A. P. 0 4 0	18-143 13-663 Ba. A. P. 0 6 0	20.060 16:402 Rs. A. P. 0 4 0	21.50 15.25 B& A. A. 0 4 0	21'460 10'449 Rg. A. P. 0 3 0	25:131 11:225 Rs. A. P. 0 5 3	22-702 28-548 Bs. A. P. 0 1 5	25.514 22-490 Re. A. P. 0 2 0	14.928 17.727 Bs. A. P. 0 2 0	20-411 53'639 Rs. A. P. 0 1 8
9:831 17:541 Rs. A. P. 0 2 11	20.526 12.529 Rs. A. P. 0 4 0	13:062 10:613 Bs. A. P. 0 4 0	8:390 12:285 Bs. A. P. 0 5 0	26.358 16.481 Bs. A. P. 0 4 0	11.50 19.58 Bs. A. P. 0 4 0	11.196 7.571 Bs. A. P. 0 2 0	25.131 13.091 Bs. A. P. 0 4 0	17:348 13:280 Rs. A. P. U I 5	13:800 19:654 Rs. A. P. 0 2 0	13:062 15:861 Bs. A. P. 0 2 0	10.205 30.616 Bs. A. P. 0 1 3
23:327 19:220 Bs. A. P. 0 2 8	10°264 9°138 Rs. A. P. 0 4 0	17.27 12.012 Rs. A. P. 0 4 0	17-235 9-581 Bs. A. P. 0 5 0	18'661 16'991 Bs. A. P. 0 4 0	16:50 21:08 Bs. A. P. 0 4 0	20.526 11.553 Rs. A. P. 0 S 0	27.171 13.091 Rs. A. P. 0 4 0	23.245 23.320 Bs. A. P. 0 1 5	16.156 24.048 Bs. A. P. 0 2 0	15:361 25:192 Rs. A. P. 0 2 0	14.797 61.234 88. A. P. 0 1 3
37:523 21:180 Rs. A. P. 0 2 11	16.794 10.396 Rs. A. P. 0 3 0	80.791 12:537 Bg. A. P. 0 & 0	24.039 13.765 Rs. A. P. 0 5 0	25-659 17-558 Rs. A. P. 0 8 0	37.25 28.58 Bs, A. P. 0 8 6	27.059 12.123 Ba. A. P. 0 8 0	23:471 14:446 Bs. A. P. 0 4 0	35-265 36-777 Ba. A. P. 0 1 5	28.915 35.105 Rs. A. P. 0 2 0	23.793 27.409 Bs. A. P. 0 2 0	21.636 71.439 Bs. A. P. 0 1 8
61:320 22:579 Rs. A. P. 0 2 11	26.125 15.995 Bs. A. P. 0 8 0	31.724 13:353 Bs. A. P. 0 4 0	32.2.4 15.069 Bs. A. P. 0 4 0	17.043 Bs. A. P. 0 3 0	42:00 30:16 Bs. A. P. 0 3 6	32.658 14.462 Rs. A. P. 0 3 0	20:411 16:36 Bs. A. P. 0 4 0	36.966 38.032 Bs. A. P. 0 1 5	32:834 87:563 Rs. A. P. 0 2 0	25:327 24:259 Rs. A. P. 0 2 0	22-963 76542 Rs. A. P. 0 1 0
24:655 24:167 Be. A. P. 0 2 5	29-557 17-928 Br. A. P. 0 2 0	33:591 14:070 Bs. A. P. 0 4 0	36.287 14.342 Bs. A. P. 0 4 0	19-127 16-53 <u>9</u> Rs. A. P. 0 3 0	46.50 25.18 Bs. A. P. 0 3 0	32.658 14.182 Bs. A. P. 0 3 0	20-411 16-136 Rs. A. P.	85-265 36-739 Bs. A. P. 0 1 5	28.915 32.236 Bs. A. P. 0 2 0	20.526 21.460 Bs. A. P. 0 2 0	22-968 71.439 Bs. A. P.
41.989 24.633 Ba. A. P. 0 2 1	33-824 17-028 Ra. A. P. 0 2 0	32.658 13.296 Bs. A. P. 0 4 0	49.594 16.668 Bs. A. P. 0 4 0	28:691. 16:685 Ba. A. P. 0 3 0	51-25 27-92 Rs. A. P. 0 3 0	81.724 14.182 Bs. A. P. 0 S 0	20-411 16-12-6 Br. A. P. 0 4 0	28'461 31'364 Ra. A. P. 0 1 5	22-962 26-647 Rs. A. P. 0 2 0	22:593 24:726 Ba. A. P. 0 2 0	• 22.451 76543 Rs. A. P. 0 1 0
Common rice Pulses Wages of unskilled laborer	Common rice Pulses	Common rice Pulses	Common rice Pulses Wages of unskilled laborer	Common rice Pulses	Common rice Pulses	Common rice Pulses	Common rice	Common rice Pulses	Common rice	Common rice Pulses	Common rice Pulses Wages of unskilled laborer
Furreedpore	Mymensing	Sylbet	Cachar	Chittagong	Noakhally, Head-Quar-	Tipperah, Comillah	Hill-tracts, Rangamuttee	Patna	Gys	Shahabed, Arrah	Tirboot, Mozafferpore
	pre	Ø.				Y-LIKO :	<u> </u>		· Y W	~·····································	

27.08 31.00 90.0**8 2**0.03 2 1872. 2 data data data Statement showing the price of food-grains and unskilled jebor in the districts comprising the Provinces of Bengal from the year 1861 to 1872.—(Continued.) S Š 27 08 80 73 80.00 **2.**8 **23**.68 2 9 187 23.777 18.979 Bs. A. P. 0 2 0 18'681 19'594 Be. A. P. 0 z 6 25.239 21.036 Bs. A. P. 0 2 0 Bs. A. P. 24:494 28:284 Bs. A. P. 0 3 0 24.980 18.661 Ba. A. P. 0 2 0 Bc. A. P. Bs. A. P. 19-083 82.658 Bs. A. P. 1870. 13:995 21:460 Rs. A. P. 0 2 6 22:962 19:961 Rs. A. P. 0 2 0 16-938 18-572 Bs. A. P. 0 2 0 24:494 27:554 Rs. A. P. 0 8 0 14:183 9:458 Bs. A. P. 0 2 0 25:192 27:992 Bs. A. P. 0 1 6 Rs. A. P. 0 1 6 Re. A. P. 0 5 0 Rs. A. P. . 688 24.260 28.9-25 Bs. A. P. 0 2 6 19·135 20·495 Rs. A. P. 0 2 0 20-204 25-164 Rs. A. P. 0 2 0 22:451 27:117 Rs. A. P. 9 3 0 15:263 9:458 Bs. A. P. U. Z. 0 Rs. A. P. Bs. A. P. 0 1 8 22:393 27:993 Re. A. P. 0 1 6 Rs. A. P. 0 1 3 . 1883 29:085 22:621 Bs. A. P. 0 2 0 22-451 25-513 Bs. A. P. 0 2 6 21:460 25:192 Rs. A. P. 0 2 6 18-979 12-343 Rs. A. P. 0 2 0 12:347 5:613 Bs. A. P. 0 2 0 Re. A. P. 0 5 0 Rs. A. P. 0 1 3 25.1526 25.152 Rs. A. P. 0 1 6 Rs. A. P. 0 1 S 1867. Rs. A. P. 0 1 1 21:431 16:753 Bs. A. P. 0 2 0 16:328 14:724 Rs. A. P. 0 2 0 16:633 4:691 Bs. A. P. 0 2 0 15:561 10:594 Rs. A. P. 0 2 6 9-695 23-603 Rs. A. P. 0 2 0 12.129 13.062 B. A. P. 0 1 6 Rs. A. P. 0 1 3 Rs. A. P. 13-26613.062 1966 Bs. A. P. 11.196 16.794 Rs. A. P. U. 2. 6 17:349 9:354 Rs. A. P. 0 2 0 15:203 24:424 Bs. A. P. 0 2 0 25:514 26:971 Rs. A. P. 0 2 6 11:325 7:530 Rs A. P. 0 2 0 23 327 23 327 R8. A. P. 0 1 6 Rs. A. P. Rs. A. P. 0 1 0 1965. Rs. A. P. 15:861 24:260 Rs. A. P. 0 2 6 18:624 18:283 Rs. A. P. 0 2 0 22:551 25:846 Bs. A. P. 0 2 0 26:534 27-938 Rs. A. P. 0 2 6 18979 17.042 Bs. A. P. 0 1 6 41.655 25.192 Bs. A: P. 0 1 3 Be. A. P. Rs. A. P. 21.131 1864 Rs. A. P. 17:727 23:327 Bs. A. P. 0 2 6 26.534 23.052 Rs. A. P. 0 2 0 Rs. A. P. 30-616 29-014 Rs. A. P. 0 2 0 23-777 1S-979 86. A. P. 0 1 0 87:323 27:992 Rs. A. P. 0 1 0 Rs. A. P. Ba. A. P. 0 1 0 24.560 27.961 29.296 1863 16-794 25-192 Rs. A. P. 0 2 6 \$1.383 23.131 Rs. A. P. 0 2 0 30.616 30.470 Bs. A. P. 0 2 0 24.697 18-979 Rs. A. P. 0 1 0 37-323 28-327 Bs. A. P. 0 1 0 Rs. A. P. 0 1 0 Ba. A. P. Bs. A. P. 0 1 1 Bs A. P. 25.192 1862. 15:561 24:260 Bs. A. P. 0 2 6 23.727 18.794 Bs. A. P. 0 2 0 41:999 23 27 Bs. A. P. 0 1 0 \$0.616 \$0.033 Rs. A. P. 0 2 0 28:471 18:979 Bs. A. P. 0 1 0 21.460 Ba. A. P. 0 5 0 24.588 Bs. A. P. 0 1 1 Rs. A. P. Bs. A. P. 26.234 1861. : : : : : : : : : Wages of unskilled laborer Wages of unskilled laborer Wages of unskilled laborer Wages of unskilled laborer Wages of unakilled laborer Wages of unskilled laborer Wages of unskilled laborer Wages of unskilled laborer Wages of unskilled laborer : : **:** : ; ; :: ; ; : : : : : : Common rice Pulses ... Common rice Pulses ... Pulses ... Common rice Pulses ... Common rice Pulses ... Common rice-Pulses ... Common rice Pulses ... Common rice Pulses ... Commen rice : Chumparun, Mothari : : Districts. Rhangulpore ፧ Godds ... Rajmohal Monghyr Purnesh Deoghur Doorning Sarun PATRA.-(Contd.) DIVISION. BRADGULFORE

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17.042 7.754 Rs. A. P. 0 2 0	24.493 16.794 Rs. A. P. 0 1 6	29-511 12-953 Bs. A. P. 0 1 6	41.842 26.634 Bs. A. P. 0 1 5	80.602 8-205 Rs. A. P.	24.032 12.50 5 Rs. A. P. 0 2 6	31.724 10.264 Bs. A. P. 0 5 0	12·594 Rs. A. P. 0 4 0	16.794 7.074 Rs. A. P.	14.927 S.706 Bs. A. P. 0 3 6	25.726 12.160 Bs. A. P. 0 2.11	13:904 7:112 Bs. A. P. 0 4 0	9.329 Re. A. P.
15:203 7:754 Bs. A. P. 0 2 0	18:894 15:861 Bs. A. P. 0 1 6	27.122 10.947 Rs. A. P. 0 1 6	29 493 23.777 Bs. A. P. 0 1 5	22.283 12.015 Rs. A. P. 0 3 0	22:807 10:739 Bs. A. P. 0 2 6	25:192 10:264 Rs. A. P. 0 5 0	15 859 Bs. A. P. 0 4 0	14.927 4.663 Rs. A. P.	17.727 8°.85 Rs. A. P. 0 4 0	25.726 15.002 Rs. A. P. 0 3 2	14'927 5'946 Rs. A. P. 0 4 0	8:395 Rs. A. P. 0 8 2
18.979 12.756 Rs. A. P. 0 2 0	25.076 14.928 Rs. A. P. 0 1 6	5.764 11.897 Rs. A. P. 0 1 6	15.979 17.042 Bs. A. P. 0 1 5	27.860 8.646 Bs. A. P. 0 3 0	25.027 12.269 Bs. A. P. 0 3 0	36:390 12:129 Rs. A. P. 0 5 0	15.859 Bs. A. P. 0 4 0	7.463 Rs. A. P.	15 859 9 9 51 Bs. A. P. 0 \$ 0	18-709 8-769 Rs. A. P. 0 4 0	13:061 6:063 Rs. A. P. 0 4 0	9-329 Rs. A. P. 0 2 7
12:347 12:551 Rs. A. P. 0 1 6	22-206 14-928 Rs. A. P. 0 1 3	19 050 Rs. A. P.	38.065 15.203 Bs. A. P. 0 1 5	15:459 7:652 Bs. A. P. 0 3 0	12:246 8:153 Rs. A. P. 0 3 0	20.526 7.464 Bs. A. P. 0 5 0	12:361 Rs. A. P. 0 4 0	9°329 Rs. A. P.	18:659 8:506 Rs. A. P. 0 6 0	14:967 9:120 Rs. A. P. 0 4 0	13.061 6:879 Rs. A. P. 0 5 0	7-468 Rs. A. P.
9.081 6.683 Rs. A. P. 0 1 6	13.295 9331 Bs. A. P. 0 1 3	7.610 R. A. P.	8774 948 Rs. A. P. 0 1 5	8:341 7:574 Rs. A. P. 0 8 0	7.729 8.459 8s. A. P. 0 3 0	13.682 8.347 Bs. A. P. 0 2 6	11.195 Rs. A. P. 0 4 0	Rs. A. P.	16794 8306 Rs. A. P. 0 5 0	19:709 11:225 Rs. A. P. 0 4 0	13'061 7'054 Rs. A. P. 0 5 0	4.063 Rs. A. P. 0 2 1
13.266 18.266 Rs. A. P. 0 1 6	17.261 14.923 Bs. A. P. 0 1 3	Rs. 4. P.	25-614 15-679 Rs. A. P. 0 1 3	22.500 26.174 Rs. A. P. 0 2 6	16-530 16-423 Rs. A. P. 0 8 0	23.327 14.928 Rs. A. P. 0 1 9	13:004 Rs. A. P. 0 3 0	Rs. A. P.	11:195 9:329 Rs. A. P. 0 3 3	14:967 8:652 Rs. A. P. 0 3 23	4	Rs. A. F.
23.777 17.042 Rs. A. P. 0 1 6	16.794 13.062 Rs. A. P. 0 1 3	Bs. A. P.	43.750 83.77 88. A. P. 0 1 3	81-151 24-675 Rs. A. P. 0 2 6	81.380 17.346 Rs. A. P. 0 2 0	34.523 14.938 Rs. A. P. 0 1 6	I7-259 Rs. A. P. 0 2 6	Bs. A. P.	12:128 11:195 Rs. A. P. 0 2 10	14.967 9.554 Rs. A. P. 0 3 23	14'927 6'471 Rs. A. P. 0 4 0	Rs. A. P.
26.634 13.469 Rs. A. P. 0 1 6	16.794 14.928 Rs. A. P. 0 1 3	Bs. A. P.	38.055 23.777 Rs. A. P. 0 1 3	26.557 19.594 Rs. A. P. 0 2 0	25:104 16:836 Rs. A. P. 0 2 0	33.591 12.129 Rs. A. P. 0 1 6	21.459 Rs. A. P. 0 2 0	Rs. A. P.	14.027 9640 Rs. A. P. 0 2 0	14:267 9:322 Rs. A. P. 0 8 24	14.927 7.930 Rs. A. P. 0 4 0	Rs A. P.
25:411 10:408 Bs. A. P. 0 1 6	18.661 16.794 Re. A. P. 0 1 3	B3. A. P.	37.044 25.614 Bs. A. P. 0 1 3	27:399 16:301 Rs. A. P. 0 2 0	27.553 17.245 Rs. A. P. 0 2 0	40-122 12:129 Rs. A. P. 0 1 6	Bs. A. P.	Rs. A. P.	18-659 9-018 Rs. A. P. 0 2 6	18:709 17:306 Bs. A. P. 0 2 8	14:927 6:513 Bs. A. P. 0 4 0	R. &P.
23:982 11:325 Bs. A. P. 0 1 6	17.727 18.651 Rs. A. P. 0 1 3	Bs. A. P.	29:493 28:756 Rs. A. P. 0 1 8	83:447 23725 Rs. A. P. 0 2 0	\$1.540 19.031 Rs. A. P. 0 2 0	29°857 14°928 Bs. A. P. 0 1 6	Rs. 3. P.	R.S. A. P.	16.794 9.951 Rs. A. P. 0 2 0	18-709 15-902 Rs. A. P. 0 2 8	14.927 8.3% Rs. A. P. 0 4 0	RS. A. P.
Common rice Pulses Wages of unskilled laborer	Common rice Pulses Wages of unskilled laborer	Common rice Pulses	Common rice Pulses Wages of unskilled laborer	Common rice Pulses Wages of unskilled laborer	Common rice Pulses •	Common rice Pulses	Common rice Pulses Wages of unskilled laborer	Common rice Pulses	Common rice Pulses	Common rice	Common rice	Common rice
# #	<u> </u>	:	:		<u> </u>	<u> </u>	owhatty) {	-γ -	udder stæ-	Sudder	s, Sudder	l Jynteah (
Hazarechaugh	Lohardagga	Маиврьост	Singhibhoom	Cuttack	Poores	Валасоте	Kamroop (Gowhatty)	Durrung	Nowgong, Sudder sta- tion.	Seebsaugor, station.	Luckimpore, station.	Khasi and Jyntean Hills, Sudder station.
		N ATORO			.ABSIEO				.нотла	Hazarr		

APPENDIX F.

Statement showing the Quantity of Jute carried down in Country Boats which passed the under-noted Toll Stations during the past five years.

Toll stations.	Year.	Quantity.	Whence carried down.	REMARKS.
Circular Canal { Tolly's Nullah {	1868-69 1870-71 1870-71 1871-72 1868-69 1869-70 1871-72 1871-72	Mds. 19,83,050 17,60,502 18,03,030 20,06,775 13,98,450 15,700 63,579 68,300 2,16,575 1,70,132	Serajgunge, Mymensing, Dacca, Furreedpore, Jessore, Nuddea, and 24-Pergunnahs.	
Bhagirutty River, Jungipore Toll Station.	1868-69 1869-70 1870-71 1871-72 1872-73	8,411 2,427 7,888 29,170 15,471	The bulk of the traffic is from Purneah, in North Bengal.	
Bhagirutty River, Nuddea Toll Station.	1868-69 1869-70 1870-71 1871-72 1872-73	19,050 8,425 30,675 34,775 14,775	Entirely from the district of Moorshedabad.	
Jellinghee River $\left\{ \begin{array}{ll} \end{array} \right.$	1868-69 1869-70 1870-71 1871-72 1872-73	1,17,075 65,275 82,700 1,68,650 39,000	From Dinagepore and Rungpore.	
Matabhangah River	1968-69 1867-70 1870-71 1871-72 1872-73	5,18,296 6,62,707 5,01,575 7,60,898 6,08,070	From From Mds. Mds. Mds. Mds. 1,04,854 2,915 4,10,527 5,18,296 1,21,958 6,034 6,31,715 6,62,707 1,40,366 6,445 3,54,764 5,61,575 2,36,367 2,040 5,22,491 7,60,898 2,41,745 3,275 3,63,050 6,08,070	* Districts of Bongal.

APPENDIX G.

Statement showing the Quantity of Jute brought down by the Eastern Bengal Railway Company, the New River Steam Navigation Company, and the India General Steam Navigation Company into Calcutta, from the year 1866 to 1873.

	YRAR.		B:	y or through wh	om.		Quanti	ty.		Total.		REMARKS
							Mds.	Srs.		Mds.	Srs.	
808	•••		Eastern Bengal I	Railway Comp a ny	,		 421,473	0		421,478	0	
867	•••		Ditto	ditto	•••	•••	 964,858	0		964,858	0	
868			Ditto	ditto		•••	 1,555,509	0		1,555,509	0	
369			Ditto	ditto	•••		 1,456,438	0		1,456,438	0	
370			Ditto	ditto	•••	••	 1,982,473	0	1			
,,		•••	New River Steam	Navigation Com	pany	•••	 285,808	8		2,512,929	8	
,	• • •	•••	India General	ditto			 235,186	0		E,312,32 9	0	Assam Line.
,,		,	Ditto	ditto		•••	 0,462	0)			Cachar Lino.
371	•••		Eastern Bengal R	ailway Company	•••		 1,747,402	0	h			
,	,		New River Steam	Navigation Com	pan y		 326,116	21		2,478,920	01	
3 2			India General	ditto	•••		 264,434	0		2,970,920	ži.	Assam Line.
,,			Ditto	ditto	•••		 140,968	0	J			Cachar Line.
72			Eastern Bengal R	ailway Company	•••		 2,903,315	0	1			
,,			New River Steam	Navigation Com	pany	•••	 278,322	38		3,952,521	38	
,,		•••	India General	ditto	•••		 331,271	0		0,002,021	90	Assam Line.
,, ·			Ditto	ditto			 439,613	0	IJ			Cachar Line.
373			New River Steam	Navigation Com	pany	***	 149,495	6	h			
,			India General	ditto			 138,294	0	}	411,448	6	Assam Line.
		,	Ditto	ditto			 153,659	0)			Cachar Line.

Statement showing the Quantity of Jute, and Hemp, Jute, and Flax received at, and forwarded from, Calcutta and Howrah, from July 1870 to 30th June, 1873, by the East Indian Railway Company.

Community of Commu				,					UP.		Down	•			
									Total forward		Total receivo		Gr	and To	tal.
	······································			··					Mds.	Srs.	M ds.	Srs.		Mds.	Srs.
July 1870 to December 31st	, 19 7 0	Jute		•••	•••	•••			283	20	990	36	*	1,274	16
IJ	emp, .	Tuto,	and F	lax.											
31st December, 1871	•••		•••	•••	•••	•••	•••,		518	16	1,425	24		1,944	0
January to June, 1872	•••	•••	•••	•••			•••		255	6	4,052	28		4,307	34
July to December, 1872	•••	•••		•••	•••	,	•••	[1,378	14	438	30		1,817	4
January to June, 1873	•••				***	•••	•••		105	13	6,151	38		6,257	10

N.B.—Previous to July 1870, the traffic in home, jute, and flax was so small that no separate heading was maintained of them, and the separate heading of jute only appears in 1870, since which the general heading of heme and flax has been adopted.

APPENDIX H.

Statement showing the Quantity of Jute exported from Calcutta, from the year 1828-29 to 1834-35 (as obtained from the Board's Office).

	1828-	1829.	1829-	1830.	1830-	1831.	1831-1832.
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity. Value
	 м. в. с.	Rs. A. P.	M. S. C.	Rs. A. P.	M. S. C.	Rs. A. P.	M. S. C. Rs. A
Great Britain	 496 30 0	620 14 9	2,293 0 0	3,970 12 0	9,552 8 0	20,109 11 0	29,605 26 0 56,323
United States	 		127 20 0	191 4 0	917 4 0	2,111 13 0	27 15 0 54 1
Batavia	 	******	1 26 0	780			
Bombay	 						1,095 85 0 1,917 1
America, North	 	*****					1,797 16 2 5,315
Total	 496 30 0	620 14 9	2,422 6 0	4,169 8 0	10,469 12 0	22,221 8 0	32,526 12 2 63,611

				1832-	1833.	1833-	1834.	1834-	1835.	
				Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
			 	м. s. с.	Rs. A. P.	м. s. с.	Rs. A. P.	м. s. с.	Rs. A. P.	•
Great Britain	.		 	32,883 27 4	63,626 6 4	6,1314 1 15	1,15,263 7 9	31,328 34 14	53,915 5 0	
Bombay	•••		 	1,662 9 8	2,143 13 3	550 15 12	1,128 12 0			
Ceylon			 			180 0 0	360 0 0			
America, Nortl	h		 				•••••	7 16 0	11 1 6	
Nova Scotia			 					14 24 0	35 4 3	
	Т	'otal	 	34,545 36 19	65,770 3 7	62,044 17 11	1,16,753 3 9	31,350 35 4	53,961 10 9	

Statement showing the Total Exports of Jute from Calcutta, from the year 1835-36 (the earliest period on record at the Calcutta Custom House) to the year 1864-65.

WH	ITHER EX	PORT	BD,		ì	1835	-36.	1836	-87. *	1837	-38.	1838	-39.
						Cwt.	Rs.	Cwt.	Rs.	Owt.	Re.	Owt.	Rs.
	United K	ingd	m	••		10,576	31,479	1,47,340	3,87,081	83,235	1,70,519	1,01,028	1,89,28
	America,	Nort	h	***		1,570	4,732	8,084	20,794	2,503	5,716	8,941	8,38
	Australia	٠	•••		•••		•••••	81	206	219	463	70	33
oreign Ports	Cape	•••		•••	•••		•••••		•••••	535	1,277		
	Ceylon	 ·	•••			15	47	70	835	12	60		•••••
	France		•••	•••				3,072	7,607	309	606	2,009	3,76
	Java	•••	• • •	•••	•••					23	162		•••••
	Penang a	nd Si	ngapo	re	•••	24	106	2	10	22	95	·····	.
	Coast of	Coron	andel	٠	•••	232	585	1,468	6,628	1,883	5,003	531	1,09
British Indian Ports.	Ditto of	Malal	ar		•••		•	5,574	14.006	1,960	3,899		
	Pegu	•••						•••		99	342	8	82

Wнı	тнвв Кхі	POBT	KD.			1839	-40.	1840	-41.	1941	-42.	1842	-43.
				·	i	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
	United B	Lingd	om	•••		78,824	1,47,530	60,770	1,15,698	1,05,400	2,27,682	2,02,624	4,33,264
	America,	No	rth	•••				536	1,003	9,508	20,851	8,648	20,502
	Australis	٠				341	638	9	22			• • • • • • • • • • • • • • • • • • • •	
	Bourbon	•••				5	10			536	1,185		
FOREIGN PORTS	Bremen		•••	•••	•••			13	25				
	France	•••	***		•••	832	1,558			81	152		
	Java	•••	•••		•••					*****		82	504
	Penang a	ind S	ingapo	re	*	16	30	•••••				75	279
British Indian	Coast of	Coro	nande	٠	•••	1,419	2,657	2,398	4,489	1,580	3,459	8,098	7,584
Ports.	Ditto of	Mala	bar	•••	•••	268	501	26	48			572	3,499

			*									
Wπ	ITHER EXPORTE	iD.			1843	-44.	1844	r45.	1846	-46.	1846	i-47.
					Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
	(United Kingdo	m	•••	•••	2,11,829	5,35,412	2,56,437	5,69,625	1,99,403	4,23,366	1,69,431	3,44,564
	America, Nort	b	•••		201	512	2,180	4,823	2,058	5,899	851	1,740
	Arabian and P	ersian	Gulfi		134	312	•••••					
	Ceylon	•••	•••	•••	,				275	848	67	187
	China	•••	•••	•••			278	616		*****	******	•••••
	France	•••							9,708	17,862	21,048	42,826
FOREIGN PORTS	Hamburg	•••	***				*****	, <i>.</i>	226	619	184	278
' -	Java	•••	•••						222	1,211		<i></i>
	Mauritius	•••	•••	•••	268	. 684			400	1,060		******
5	New South W	ales	•••	•••		. ,,,					1,056	2,226
	Penang and S	ingapo	re		.,	*****	*****				23	100
	Portugal	•••	. ***	•••	279	711	474100	•••••			•••••	•••••
British Indian	(Coast of Coron	mande	1	***	2,290	6,895	220	561	578	2,044	263	1,257
PORTS,	Ditto of Mala	bar	•••	•••			 .		537	1,968	*****	*****

W 11.	THER EXPORTED.		1847	7- 4 8.	1848	3-40.	1840	-50.	185)-51.
			Cwt.	Ra.	Cwt.	Rs.	Cwt.	Re.	Cwt.	Rs.
	United Kingdom		2,46,144	5,04,886	3,28,948	6,71,838	3,64,906	8,23,835	5,64,907	19,10,686
	America, North		536	1,094	7,231	14,766	24,465	61,901	6,790	22,825
	Antwerp				69	137	*****		*****	
	France ,		43,203	88,113	87	77	1,690	3,779	10,234	34,414
ORBIGN PORTS	Hamburg	•			134	273			94	. 315
	New South Wales	٠			•…••	*****			40	135
•	Penang and Singapore				13	27	185	877	*****	
**	Trieste			•••••			•••••	••••	294	990
	Coast of Coromandel	·			1,454	2,970	64 8	1,323	439	1,850

WHI	THER EXPORTS	D.			185	1-52.	1852	-68.	185	3-54.	1854	l-55.
					Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
	United Kingdo	om.			4,99,506	16,89,741	3,12,764	10,13,795	3,69,944	11,78,132	5,65,749	18,45,884
	America, North	h	•••		18,986	63,792	18,100	58,044	96,729	. 3,04,516	93,700	3,04,318
	Arabian and P	ersian	Gulf	s ,	•	*			1	6	******	
	Ceylon			•••			*****			••••	1,077	3,417
ORBIGN PORTS	France		•••		16,738	56,230	16,231	51,780	39,815	1,26,565	34,560	1,22,801
	Mauritius			•••					689	2,125	4,018	12,750
	New South Wa	les	***	•••					48	173	- 31	102
	Penang and Si	ngapo	re				26	85	72	200	26	80
	Rotterdam		•				267	850				
British Indian Port	Const of Coror	mande	l	•••	117	540	1,428	4,796	1,357	4,066	3,221	9.724

Wu	ITHER EXPORTED.			1855	-56.	1850	6-57.	185	7-58.	1858	-59.
				Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
	(United Kingdom			7,65,680	28,54,990	4,92,543	20,11,	6,70,217	25,12,719	1,20,962*	45,15,880
	America, North	•••		53,698	2,00,750	1,12,170	4,58,031	68,791	2,58,580	82,789	3,09,081
	Ditto, South									1,607	6 000
•	Bremen	•••	•••	808	3,020			•••••			
	Ceylon		•••	686	3,510	2,254	9,293	3,817	14,250	. 2,762	10,311
	China			1,546	. 5,603	1,224	5,000	•			
FOREIGN PORTS	France	• • •		₽6 5,539	2,07,050	64,610	2,63,830	45,020	2,42,740	1,08,605	4,05,460
	Hamburg			214	800	•••••	•••••	620	2,350		
	Java	•••				5	20	*****		56	210
	Malta	•••			.,	97	400	*****			••••
	Mouritius	•••	•	792	3,450						
	Penang and Singar	ore		2,025	7,575	37	150	37	250	38	140
	(Suez									803	3,000
	Coast of Coromand	le1			,,,,,,	381	1,557	276	1,150	268	1,000
British Indian Ports	Ditto of Malabar	•••	•••	,		61	250			80	800
	Pegu	•••			****					29	108
•											ł

^{*} Sic. in Board's published Volume, whence the figures have been taken. The quantity is far too small as compared with the value. In the "Commercial Annual"—a private publication, for some period—from May to April—the quantity given is Indian maunds 15,93,883.

	WHITHER EX	POR1	BD.				1859	-60.	1860-	61.	1861-	62.
etterministrativitation of the state of the							Owt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
	United Kinge	dom					6,82,304	28,05,437	9,23,638	34,63,644	11,20,994	48,97,61
	America, Nor	th					23,777	88,711	57,005	2,13,769	49.790	2,08,08
	Arabian and	Pers	lan G	alfs			670	2,500	1,387	5,200		•
	Bremen	•••		•••							2,737	14,3
	Ceylon	•••	•••	•••			4,004	14,950	5,600	16,800	7.324	28,44
	China	•••							480	1,800	·	
PREIGN PORTS	France						50,086	1,86,990	1,00,031	3,75,116	38,351	1,80,0
	Hamburg	•••	•••]	225	480				*****
	Maldives	•••	•••		.,.				2,666	10,000		
	Malta								•		134	7
	Penang and 8	Singa	pore		•••		65	260	1,733	6,500	51	2
	Saint Helena			•••							12,662	44,4
	Coast of Coro	man	del	•••			525	2,000	1.764	6,600	5,445	25,5
ritish Indian Ports	Ditto of Mak	abar							2,133	8,000	72,520	3,16,2
	Pegu			•••					6	24	318	1,3

	WHITHER EXPORT	ED.				1862-	63.	1803	-64.	1864-	os.
AND COMMERCE OF A STREET, STRE			 -	.,		Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
	United Kingdom	•••				12,19,903	72,17,862	25,92,780	1,44,88,364	20,24,497	1,26,17,102
	Amorica, North					21,163	1,25,138	58,266	2,92 806	42,601	2,66,596
	Ditto, South									4,821	22,500
	Antwerp							586	2,250	*****	
	Arabian and Persi	an G	ulfs			ı	7				
	Bremen					7,481	50,382	9,255	42,061		*****
Pobbign Pobts -	Cegion		•••			4,152	21,757	1,071	6,429	4,553	27,907
	Franco					13,626	86.687	56,395	2,34,584	23,833	1,42,490
	Genoa					******		,,,		27	161
	Hamburg					181	802			*****	
	New South Wales		•••			100	602	37	225	184	1,071
	Penang and Sings	pore	•••			67	351	300	2,244		
	Const of Coroman					7,859	60,209	6,891	47,765	18,467	1,08,407
BRITISH INDIAN	Ditto of Malabar			•••		87,650	5,47,701	1,39,212	8,62,008	5,69,281	30,29,911
PORTS	Pegu			•••		13	81	63	599	99	740

Statement showing the Exports of Jute, Jute Cuttings and Jute Rejections from Calcutta, from the year 1865-66 to 1872-73.

					1860	j-66.			1866	3-67.	
WI	гинв Ехровтер.			Ju	ite.	Jute Rej	jections.	Jı	ite.	Jute Rej	ections.
· · · · · · · · · · · · · · · · · · ·	•			Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.	Owt.	Rs.
	(United Kingdom			20,24,844	71,10,184	2,01,211	1,83,390	15,58,708	60,78,983	53,578	94,500
	Americs, North			10,00,654	3,80,463	10,491	9,535	1,10,966	3,99,925	21,411	9,775
	Bremen						•••••	2,004	7,500		
	Ceylon	•••		3,281	12,259			2,678	10,000		
FOREIGN PORTS	China	•••	•••			22	74	353	2,937		
	France			4,277	15,970	9	4	5,887	21,980		
	New South Wales		•••	1,007	4,030		*****				
	l Strait Settlements			24	90	•	•••••				•••••
•	(Bombay	•••		92,840	2,40,601	*****		83,085	3,21,570		••-
BRITISH INDIAN	Madras			37,059	1,54,790			536	2,000		
PORTS	Pegu	•••		266	1,087	•••••		. 104	404		*****

	•				1867-68.			i 	1868-	69. J	
W H	ITHER EXPORTED.			Jı	ite.	Jute Re	jectiona.	Ju	e.	Jute Raj	ections.
***				Cwt.	Ra.	Cwt.	Rs.	Cwt.	Ra.	Cwt.	Rs.
	United Kingdom	•••		21,13269	1,20,50,810	37,521	1,,05,769	27,55,288	1,65,57,891	2,22,207	5,92,559
	America, North			91,495	5,00,576	31,887	56,549	1,80,340	11,59,967	1,81,911	4,24,861
	Bourbon		•••	1,339	8,036		••••	*****			*****
FORRIGN PORTS.	Ceylon		•••	1,339	7,609	•••	•••	5,282	31,557		•••••
_	China	•••		27	181			*****			••••
•	France			14,022	92,192	286	714	5,804	31,822		
•	Straits Settlements		•••	373	850	7	66	293	1,880		••••
	(Bombay	- 🛊	•••	1,82,193	11,74,171			2,14,989	12,88,525		*****
RITISH INDIAN	Madras	•••		7,040	42911	••••	,	46,950	1,98,221		
PORTS.	Pegu			215	1,141	128	82	272	2,578		

							1869	-70.			1870	·71.	
Wnı	THER EXP	ORTI	BD.			Jı	ıte.	Jute Re	jections.	Jı	ute.	Jute Re	jections.
				· · · · · · · · · · · · · · · · · · ·		Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.	Cwt.	Ra.
	United K	ingd	lom	•••	•••	28,31,567	143,97,530	1,24,834	4,37,638	31,23,900	2,22,58,472	1,33,191	6,44,715
	America,	Nor	th	•••	•••	1,36,328	8,90,229	2,01,900	6,65,387	1,90,085	14,41,704	2,87,363	12,98,638
	Ceylon			·•		3,683	24,032	•	*****	1,921	18,176		
obrign Ports	China			•••		40	333			4,318	58,901		•
	France	.			• •••	48,734	8,24,202	491	1,719	4,039	28,275	•••••	
CARION I CAIS	Hamburg	:	•••	•••	•••	2,545	17,813		•••••		١	•••••	
	Italy		•••				,		•••	358	2,945	•••••	
	Port Said		•••		•••			···· ··	•••••	8	72	•••••	
	Straits Se	ttler	nents	•••	•••	11	63		• • • • • • • • • • • • • • • • • • • •	165	1,341	•••••	
	Trieste	•••				67	469			54	482	•••••	1.0.000
i	Bombay	•••		• • •	• • • •	76,673	4,65,838		*****	16,499	1,09,309		
British Indian Ports.	Madras	•••	•••			11,527	75,170		•••••	609	4,159	•••••	·····
	Pegu					1,075	6,861			1,725	13,606		

,								-	1871	-72.		
	WHITHER EX	PORT	ED.				Ju	te.	Jute Cu	ittings.	Juto Re	jections.
1 (Colon Brougge of Ingen to Albert Steen) folial field	d about many in more an a company			r for a galaced			Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
	(United Kingd	lom					47.63,841	3,42,61,261	1,60,313	7.34,224	40,688	,2,11,808
•	America, Nor	th					2,35,643	17,79,590	7,47,939	31,43,977	1,23,149	6,10,256
	Amsterdam		••-		•••		2,473	18,750	,.		••	,
	Bremen		•••	•••			19,687	1,39,955	•••••	•••••		
	Ceylon						696	7,292			*****	
OREIGN PORTS	China	•			•••		5,906	46,272		*****	*****	•••••
	France	•••			•••		6,772	52,383	50	200	67	275
	Italy						87	. 218				*****
	Straits Settler	ment	s	•••	•••		99	710		*****	******	•••••
	Sues	•••	•••	•••			6	60		******		******
	Trieste	•••	•••	•••	•••		21,215	1,32,709		*****	******	*****
•	Bombay	•••	•••	•••	•••		85,918	5,32,258			*****	
RITISM INDIAN . PORTS.	Madras				•••		8,168	24,947				
	Pegu		•••	•••	•••		948	7,716				
						}			- 4			

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•							1872	• 73 .	Contractors on any analysis decreased	
	WHITHER EXPORTE	D.			Ju	te.	Jute Cr	attings.	Jute Reje	etions.
,					 Cwt.	Rs.	Cwt.	Rs.	Cwt.	Rs.
	United Kingdom				 50,50,409	3,35,84,602	2,21,676	6,29,870	1,54,339	5,70,349
	America, North				 3,07,718	21,21,684	10,39,953	29.71.400	1,18,942	4,23,10
	Austerdam	•••	•••	•••	 5, 857	19.085	20,00,000			
	Australia				 282	1,921			******	******
	Саре	•••			 18	324		•••••		•••••
RRIGH PORTS	Ceylon				 					
	China				 1,664	11,803				······
	France				 3,398	20,577		• • • • • • • • • • • • • • • • • • • •		•••••
	Italy				 1,37,126	8,29,904	10,715	29,465	625	1,800
	Straits Settlements				 45	324			3	
	Trieste				 452	3,556				
					9,139	59,662				
LITISH INDIAN	Bombay	•••			 1,58,073	8,58,107	•••••			••••
PORTS.	Madras				 21,898	1,16,085				
	Pegu		•••		 13,767	95,989				

APPENDIX I.

Statement furnished by the Commissioner of Customs and Opium, Bombay, showing the quantity of Jute exported from Bombay to the United Kingdom during the last ten years, no separate register of exports to individual Ports being kept by the Customs Department.

Years.											Q	nantit	y of Jute expo Cwt.	rted.
1863-64														
1864-65								•	••				• • • •	
1865-66					٠.,					• •			• • • •	
1866-67		,											2,014	
1867-68														
1868-69													10,491	
1869-70				~ •								٠., ٩	7,719	
1870-71											٠.	• •	32	
1871-72													929	
1872-73	••						••				• •		17,746	

Statement showing the Quantity of Jute (Raw) exported from the Madras Presidency to the several Ports during the last seven years.

	Years.			United King- dom.	France.	America.	Ceylon.	Bombay.	Çalcutta.	Total.
				Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
1866-67			•	214	4,187		21	305	••••	5,027
1867-68		•••				••····		••••		
1868-69				8			2	*****		10
1869-70			•••	3,453		40	*****			3,493
1870-71				7,869	1,561		294		127	9.851
1871-72	•••	•••		4,763			8			4,771
1872-73				410			*** ***		····••	410

APPENDIX J.

Statements of leading prices of Dacca Jute of good qualities only, during the principal three months of the season of previous eighteen years.

		Мохтия				192		958	1857.	1859	15.59	1960.	1881	<u>35</u>	1863.	1581	1365.	1866.	1867.	7. 1908.		1969.	1870.	1871.	1872.
3	•			٠,										- (
						Rs. A.	P. Rs.	A. P. B	s. 4. P.	Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P.	Rs. A. P.	Rs. A. P.	Bs. A. P.	Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P.	Rs. A. P.	Rs. A. P.	Вз. А.	P. R.s. A.	P. Rs. A	. P. 33, 4	l. P. Bs.	A. P. B	S. A. P.	Rs. A. P.	Rs. A. P.
September	•	;	:	:	:		0 9	61 61	99 90	90 90	9 0 8	0		2 13 0	212 0 214 0 3 1 0 2 2 0 3 1 0 2 6 6 210 6 3 3 0 4 2 6 4 3 6	3 1 6	61 61	0 3 1	6.	6 2 1	9	<u>ာ</u>	90 91	9	6
October	ī	;	:	:	:	1 7	63	0	170 270 276	2 11 6	9 0 8	61	6. 6.	1 0 2 6 6 2 15 0 2 13 6 2 14 0 2 4 6	. <u>9</u> 13 6	2 14 0	21 44	6 2 12 0		2662110330420430		ئ ق	63	on •	61 4
November	•		:	;	;	1 6 6	61 	- C-	2 5 0 2 4 0	6 6	1 15 9	9 8		280 330 2140 2150 2100 2126 270 2106 320 480 400	2 14 0	2 15 0	2 10	0 3 12	6 2 7	0 2 3		0	⊙ ∞	0 0 4	83 83
									-												-				

Statement showing the price of Jute at Serajgunge for the ten years from 1863 to 1872.

,	REMARKS.		4 12 0 8 12 0 The prices were not the same throughout the year. The average prices are given in this	return.		
	1872.	Bs. A. P.	3 12 0	9 8	3 0 0	
	1871.	Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P.	4 12 0	4 &	0 0	
	1870.	Rs. A. P.	3 12 0 5 4 0	4 12 0	0 0 4	
	1839.	Rs. A. P.		89 49	0 김	
38 IX	1868.	Rs. A. P.	8 8	3 0 8	9 8 7	
PRICES IN	1867.	Rs. A. P.	9	8 6	9	
	1566.	Rs. A. P.	3 12 0	9 9	0 0 6	
	1865.	Rs. A. P.	4 12 0	9	G %	
	1864	Es. A. P. Rs. A. P. Rs. A. P.	3 0 0	99 90	0 0	
	1863.	Rs. A. P.	4	8 12 0	0 0 0	-
			:	:	:	-
			:	:	:	
	E		:	:	:	
	DIFFERNT KIDSS OF JUES		:	i	:	
	KIDNS		÷	ŧ	•	
	SBEXT		:	:	:	
	Diff		:	£	i	
			:	ŧ	•	
			Superior	L edium	Inferior	

APPENDIX J.-(Continued.)

. Statement showing the highest and lowest prices of different kinds of Jute in Calcutta for the years 1865-66 to 1871-72.

		1865-66	.86	1866-67.	-67.	1867-68.	89.	1868-69.	-69	1869-70.	.76.	1870	1870-71.	187	1871.72.
Jute from		Highest price.	Lowest price.	Highest price.	Lowest price.	Highest price.	Lowest price.	Highest price.	Lowest price.	Highest price.	Lowest price.	Highest price.	Lowest price.	Highest price.	Lowest price.
		Rs. As. P.	Rs. As. P.	Rs, As, P.	Rs. As. P.	Bs, As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.						
Serajgunge	:	3 12 0	3 0 0	0 8 6	භ ලෝ	0 8 8	9	3 14 9	3 11 0	6 11 0	4 10 0	6 4 0	0 0 9	0 8 8	3 4 0
Deswal	:	8	4 13 0	3 14 3	3 7 0	3 10 6	3 2 8	4 12 0	4 6 0	4 8 0	4 4 0	4 12 9	0 8 7	0 8 6	2 4 0
Kankripara	: :	0 0 \$	3 12 0	4. 2. 9.	4 0 3	3 14 0	3 11 9	5 12 0	6 9	5 2 0	0 0 9	0 0 9	0 11 9	60 40	0 69
Kansarir chur	:	97 97	0 0 4	0 4 4	24 83	0 0 \$	3 14 6	6 14 3	0 2 0	5 2 0	5 0 3	609	5 13 0	3 6 0	3 2 0
Uttaryia juto	:	8 12 0	8 4 0	0 0	3 8	3 12 0	ස න	6 4 0	6 0 0	4 12 0	4g 80	6 12 0	0 4 0	2 14 0	2 10 0
Naraingunge	:	3 14 0	67 69	3 4 0	83 83	3 7 3	3 4 0	8 8	3 6 6	4 12 0	4 10 0	4 0 3 8	3 12 0	8	3 0 0
Shombhoogungs	:	0 7 7	3 13 6	0 8 8	0 8 8	3 13 0	3 7 8	3 10 6	3 8 0	4 11 3	4 10 0	4 10 9	0 8 7	8	300
Babnaparah	:	0 8 9	4 0 0	3 12 0	3 8 0	3 14 3	3 10 0	4 0 9	3 12 0	0 8 9	6 0 3	4 10 0	4 4 0	က မ	3 4 0
Gheor	:	& 4 &	3 0 0	3 10 0	3 0 0	3 6	3 0 0	3 7 0	8 4 8	4 12 9	4 10 0	0 7 7	0 0	6 0	2 18 0
Bolla	:	4 19 0	4 4 0	0 0 \$	3 12 0	3 14 0	3 10 3	4 0 3	3 12 0	6 8 0	6 4 0	4 10 0	0 8 9	9 8	3 4 0
Deora	:	3 4 0	3 0 0	0 8 8	2 4 0	63 63	2 0 0	2 10 3	8 0	3 8 0	0 0 8	2 4 0	0 0 8	1 12 '9	1 10 0
Pats of other places	i	4 12 0	83 44 S	0 0 \$	3.80	4 0 0	3 9	4 10 9	4 0 0	0 8 9	0 0 9	4 12 0	0 8 4	. 2 3	3 4 0

APPENDIX K.

Statement showing the Principal Jute Marts and Centres in the Bengal Presidency.

Division.	Distric	te.	Principal Jute and Centre	Marts	Remarks.
,	Burdwan	{	Burdwan Culna Cutwa		
	Bancoorah	{	Barkura Rajgram Bishenpur Ramsagor	••• •••	These are minor marts.
·			Dassagram Hameeruddeen's hât Gange		
			Kolabaria Bhooyapore Mangalamaro Boodyo	*** ***	
	Midnapore		Dorja Kukurabatty Gaonkhally Babbortalis	••• •••	
MAWD			Ballyghye Dhangadi Body Babu's Moorasti Bhorda		
			Baharema Bamdeb Shamgunge	••• •••	
			Chatra Seoraphuli Chootergunge Bhudressuar		
	Hooghly		Tribani Mogra Babugunge Bolagore Sije	•••	
	Howrah		Sijo Bhastara Dhoneykhali Howrah		
·	110WIRM	Bassirhaut sub-division.	Bhadooriah		
ļ	24-Pergunnahs	Baraset sub-divi- sion.	Gouriroro Baraset		
		Dum-Dum sub-divi- sion.	Pati Pooker Belgatchia Gouripore	••• •••	
ebidercy <	Nuddea	{	Kooshteah Kumercally Soelcupale		
	_		Binodpur Satrajitpur Bhaban Hati Rajgunge	••• •••	
I	Jessore		Nowhatta Abaipur Magurah Echakpada Radhanagore	*** ***	
		t {	Monirampur Khagra Beldanga	***	
	Moorshedabad		Baloochur Jeeagunge Bhogowangola Alatoolee or new .gola.	Bhogowan-	
HAHYD			Roghunathgunge Dhulian	*** ***	
		·	Joygunge Panbora Khansamagunge Bhocahee	••• •••	
	Dinagepore	1	Kahoroot Roygunge Nya Bonder Nowabazar Dinaganora	*** ***	
	1.		Dinagepore Baloorghat	***	í

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Division.	Districts.	Principal Jute Marts and Centres.	Remarks.
		Hamidpore	
	·	Kalooparah Toorukbariah	
!		Pajordangah	•••
ļ		Joka Kachooah	
		Sharabara	
,		Methapore	•••
		Dhonparah Bandikharah	
		Nundalalee	
		Nowgoan Katkhyre	
ļ		Kalikapore	
		Togarah	•••
		Merat Doorgapur	
		Koorajparah	
ļ		Lukheepore	
		Sylegachee Burcedoho	
۲	Rajshahye	Kalleegunge or Kalkapore	
1		Dosoteenah Noorulabad	
11		Pershaudpore	
11	j	Kya	•••
11		Khoodydanga Kessyre	
11		Soffy	
11	Į.	Dhoobyle	
	ŀ	Sookteegachee Khooleekhalee	
1		Taharpore	
1	ļ	Mohungunge Madnagore	
11		Choonagaree	
! !		Nagore	
]	I	Koojyle Betgaree	***
	i	Bhobaneepore	
1)		Sahebgunge	
	İ	Kasheabarce Suthoroanah	
[]	. (Singrah	
!!	•	W-11:-unes	1
11	i	Kalligunge Chitmary	
	i	Kamargani	
]		Belka-Nowabgunge Sondergunge	•••
11		Mirgunge	
11	·	Rancegunge	
11		Bakshigunge Rothar Bazar	•••
الـ	Rungpore	Panch gachi	
ontinued.)	İ	Jattrapore Nunkhawa	
oneinueu.)		Kalaghat	
- 11	#	Kakena	
		Bhotmari Ghoramara	***
11		Baragari	
į į	1	Kishoregunge	
		Gorgram Bhowanigunge	
[]	ſ	Mathrapara	
11		Gurabhanga Madhupore	
11		Fulhari	
11	I :	Goshainbari	
11	11	Balughat	
j i] [Shonatola	:::
[]	Bograh	Elangi	
- 11	11	Mirapore	
Ĭ1	11	Khanpore	
11	l I	Serpore	
11	i i	Shonamukhi	
11	•	Dup Chanchia	•••
1!		Hili Sibgunge	
- 11	Ų	Tilukpore	
	4	Pubna	
11	1	Pubna Sojanugger	
11	!	Dogachee	•
		Bhandara	
[]	Pubna Sudder sub-	Chandva	•••
1	C maising	Dhapari	•••
	t.	Chatmohor Bhanguria	
	11	Diangura	***
1	er en a esta en en en en etc. 🚹	Berah Nakalia	1,644

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Division.	Districts.		Principal J and C				REMARKS.
. 🛡		<u> </u>	Serajgunge		,,,		The largest mart in North-Easter
		i i	Paugasi	•••	•••		Bengal.
		~ []	Rajgunge Chondrakona	•••	•••	[
oichobro —/ Comold)	Pubna(Contd.) { Sernjgu	ւրge	A 1	•••	•••		
ajananye.—(Concra.)	dona - (Coman) & sub-divis	sion.	** '' '		•••		
		- 11	Kandapore	•••	. •••		
		- !!	Khamaroollahp Chowhali	ore 	•••		
,	Darjeeling		Darjeeling	•••			
ĺ		ſ	Julpigoree	•••			
		[]	Gopalgunge Domohonee	•••	•••		
1	İ	1	Madargunge	•••	•••		•
	İ	1	Bakalee		•••		
į			Jorepackree Chaugmaree	•••	•••		
		- 1	Churabhandur	•••	•••		•
l			Fallakota	•••	•••	}	
Ì		ı	Boyragyhat	•••	•••		
ķ		1	Bowra Debigunge	•••			
_	Julpigoree	J	Nya Debigunge		•••		
оосп Ввилв	A serbiBorec	}	Bhowlagunge	•••	•••		
· •		į	Saldangah Boda	•••	•••		
j	1	- 1	Berubarree		•••		
1		i	Rajnugger		•••		
	1	1	Tetalya Kassimgunge		•••		
		l	Rajgunge	•••			
		1	Ranecgunge	•••	•••	• • •	
		1	Meenagori Porteadehur	•••	•••	•••	
		1	Ramsahat	•••	•••	•••	
		Į	Halapackree		•••	•••	
		_	Thomas manage T	TAL			
		•	Dewangunge I Chowrar	11 <u>1</u> 16	•••	•••	
į	Cooch Behar	≾	1	,, ,,			
		· ·		,,	•••	• • •	•
		(Dacca				
	Ì	[Naraingunge	•••			The largest mart in Eastern Benga
		- 1	Modongunge	•••		•••	
		- 1	Kaligunge Bhoyrub bazar	•	•••	•••	
	Dacca		Sabar	• • • •	•••		
		1	Ektala	•••	•••	•••	
		j	Manickgunge	•••	•••	•••	
		1	Boora Kalipara	•••	***		1 1
<i>'-</i>			7	•••			
			Kholabaria	•••	•••	•••	
			Bhanga Madhukhali	•••	•••	•••	
			Coomarkhali	•••	•••		
			Sodpore	•••	•••	• • •	
			Boalmari	•••	•••	•••	
		į	Gopalgunge Goalundo	•••			
	Furreedpore	◀	Joynugger		•••		
	!		Betangah	•••	•••	•••	
			Fotepore Deora		•••	•••	
			Dignagar (sm	all)	•••	:::	
	11:		Shoreepabad	•••	•••		
DACCA	<i>}</i>		Manicknugger Madhubpore I	HAt (P ariz sha)	
				,			The largest mart for the Deora Ju
	Backergunge		Madaripore	•••	•••	•••	The sundant man to the many A
	11	.440-	Nusseerabad Shombhoogun		•••	•••	
		ıdder b-divi- ≺	Boira		***	•••	
		ion.	Dutto bazar	•••	•••	•••	
	11 -	!-k	Kharaid		•••	•••	
		ishor- ge sub-	Kurreemgung Bhoyrub baza	r	•••	•••	
	1 l die	ision.	(Kaliadi	•••	•••	•••	·
	il Mymensingh <	nalpur	Jamalpore	i	•••	•••	1
	sut	o-divi-	Bowshee Ban Nolita Bari		•••	•••	1
·		ion.	Sherepore	***	• • • •	•••	
	11	L	C Shealkool	***	•••	***	
		ea sub- vision.	Soobunkally	•••	•••	•••	
	11	- Water	Nagorepore Balagunge	•••	••	•••	l .
	3 (•••	••		i e
) Chattuck	***	***	•••	
	Sylhet	•••	Chattuck Lakhai Kazir bazar	•••	•••	•••	

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Division.	Districts.	Principal Jute Marts and Centres.	REMARKS.
	Tipperah	Charkalia Chur Dosani Mohunpore Ramchunderpore Sonarampore Bholachunga Sreeghur. Churtalla Khatoongunge Ferangee bazar	
Спіттасонс {	Chittagong	Bukses hât Hazary's hât Raindoss Moonshee's hât Modon hât Beeby's hât Nazir's hât Narain's hât Rumzan Ally's hât Fakir's hât Kanoongo's hât Choto kumara's hât Abbootarab's hât Ramgopal Mohajon's hât Mitaserra hât Mohasing Dewan's hât Poong's hât	
Patna	Sarun	Revilgunge Solempore	
BHAUGULPORR	Purneah	Kecslea Ekumlea Palasmani Doolargungo Saifgunge Bhowanipore Doomur Barshoi Balia Purnea (city) Haflagunge Nowabgunge Katakosh Amdabad Luckhipore Araria Chakie Culna Daria Jhagno Balua Sikti Bardaha Kursakatta Sonapore Nowabgunge Meergunge Patengnah Ranigunge Amgachee Muzkuri Oukhwab Salaigardh Gunamatiari Panjipara Koopadah Kissengungo Baligorah Kaliagunge Khurkhanee Panbara Goonjuria Bahadurgunge Sontha Kooti Devangunge Sahebgunge Sahebgunge Sahebgunge Salesgange Sahebgunge Salesgange Sahebgunge	
CUTTACE	Pooree	Generalia Genera	

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Division.	Districts.	Principal J and Co	ute Ma utres.	rts		REMARKS.
		Chhangar		•••		
۲	Pooree (Continued.)	Toolsipore	• • •	•••	•••	
ĺ	Pooree.—(Continued.)	Sarkautar	•••	•••		
		Narangada	•••	•••		
$rack(Contd.) \leftarrow$		Singla bât				
İ		Sahaje hât				
ļ	Unio ano	Turigaria hât	•••			
Ĺ	Balasore イ	Meyah hât				
		Munsurgunge hi	λt	• • •		
	i e	C. mannangan 8				
		Patamari			•••	
		Demacurri			•	
		Goluckgunge	•••	• · · ·	••• }	
		Agomony		• • •	•••	
	į	Bishkhowa	•••	•••		
		Sonabandha	•••	•••		
		Kaldhoba	• • •	•••		
		Kherbarce	• • •	•••	•••	
		Simlabaree Koondebaree	•••	•••		
		Protabgunge				
		Gouripore				
		Gossaingunge	•••			
		Molakhowa	•••			
	1	Madarchur	•••			
AM AND ADJA-	Conlaura	Jemadarbût				
AM AND ADDA- ENT HILLS.	tompara	1 Manikarchur		•••		
ENT 1111.1.5.		Singeemarce				
		Decara				
		Mohendrogunge	·	•••		
		Kakroopara				
	İ	Binnachera			•••	
		Sootakhowa riv				
	1	Pagla river ghà	t	• • •		
		Jingiram river	gnat		***	
		Soota river ghâ	t	1.4+		
		Berhampootra	river g	nat	• • • •	
		Luckimpore Bu Jemadar hût	maer		•••	
		Dehee Joypoor				
		Dehee Nachoon			•••	

N.B.—The districts in which there are no marts have been omitted from this statement.

Statement showing the Quantity of Manufactured Jute exported from

		1863-64. 1864-6								1865-68.			1866-67.				1867-		
IKR BYPORTED.			Jute, twine, and rope.		Gunnies and gunny cloth.		Jute, twine, and rope.		Gunnies and gunny cloth.		Jute, twine, and rope.		Gunnies and gun- ny cloth.		- Jute, twine, and rope.		Gunnies and gun- ny cloth.		
	Pieces.	Value.	Cwt.	Value.	Pieces.	Value.	Cwt.	Value.	Pieces.	Value.	Cwt.	Value.	Pieces	Value.	Cwt.	Value.	Pieces.	Value.	
Kingdom	69,340	Rs. 20,876		Rs.	74,284	Rs. 40,526	3}	Rs.	169,501 Bales 268	Rs. } .2,41,779		Ra.	' 1	Rs. 2,27,170	1+1	Rø.	38,1 58	Rs. 2,67,36	
					2,000	540			145,250	34,525			12,002 21	3,768 9				60	
Lmerica Incisco	3,392,546 571,212	4,84,791 87,662			2,667,250 505,018	3,81,892 71,701			8,629,653 1,349,212	19,03,341 2,03,417			7,195,409 250,000	30,000			6,387,047 281,500	20,87,18 61,21	
merica dies	63,000	9,090			67,500 80,000	8,187 22,300			\$2,000	9,600			29,000	5,170			13,200	5,64	
tinople tal	,,,,,,	,,,,,,						, , , , , , , , , , , , , , , , , , ,	6,000	900				*****			*****	******	
Good-Hope	133,700	21,895			82,500	12,575			100,950	18,741	···		183,100	23,540		····	129,000 7,500	26,28 2,10	
	10,000	2,700			18,000	4,860			14,250	3,938			8,000	2,160			*****		
lria	20,400	5,508	4	2 8	21,000	5,668		42	40,500 2,000	11,135 540	3	21	28,500	7,695	21	147	71,100	19,79	
Gulf Gulf	400	60 				(111111			424	108			3,908 2,000	1,060 425			48		
us	35,230 25	5,048 4						 28	475 1,751	295		***	61	9 2,20,146			7,680 257,900	1,39	
uth Wales a, other ports	353,198	60,592	271	193	304,078	73,180	l	h.	455,102	1,07,589				30,335		•••	197,223		
Settlements	195,432 1,146,475	29,722 2,09,986		1,189	367,112 680,775	47,256 } 1,31,369	1	 339	6,700 869,800	2,230 1,79,066	41	308	190,900 873,218	1,96,360	 208‡	 1,462	833,288	1	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	189,000	33,950			Bales 50 58,600) } 10 10x	İ		443,901	80,265	1	111	,	111111	144		221,450	Į.	
and Laccadive	200	30			Bales 126 210	54			550	88		741	760	156	"				
ls. 	299,350	72,718			477,850 Bales 40	1,08,480	3	21	409,852	1,20,202	43	642	568,5 50	1,07,415			230,385	55,4	
reign countries	45-F ORK	1 10 000			542,550	1,77,678	 35	 241	165,000	58,000							******		
160	16,068,191	1,48,965 26,40,844		1,972	11,466,881	23,89,832		5,952	20,414,200 Bales 25	33,82,707	622	6,374		22,26,974	582}	4,111	15,119,220	1	
***	500	180			14,200	4,860			4,000 16,750				10,700 11,350	2,681 2,215			21,250 11,250		
oro					1,000	450 			5,000								1,500	5	
orts in Bombay lency.								,,,				'''			""		*****		
ierty	13,590 656,6 00	3,502 1,41,456	 110	1,820	1,117,973	2,81,853	135	1,680	4,000 1,552,409	1,200 3,87,48	895 895	6,247	863,250			968	1	1,76,3	
•••	100	320	s			11411	,		100	820	1		100 5,100	325 765			1,000	2	
ry uam	36,000	11,560)		136,893	38,794			44,150	12,41			47,650		15	105	20,216 10,456	4,9	
 la	4,450 20,800				7,700 6 9,000	14,830			63,000 25,850	22,17: 7,5 K			115,400	26,957 1,400			209,350	51,4	
4	5,000	1,000	***		6,750 91,400	1,245 18,295	},		6,000	1,860)		5,000 9,300	1,860			26,30	1	
mtam	800	30)		23.750 7,000	3,548	3;		14,000	2,00)		4,000	1,220					
ore cotta	4,000	1,37	5		5,000	750)										1,50	0	
el tam	******		111		10,500	1,578	5		******		60	420	6,000 2.000	750	32	224			
ly in		,,,,,,			10,000				432,500	62,91	5 ··· 7	1			***				
orts in Madras	*****				4,909	730						***	D1 4 000	1 00 001	109	766	1,580,25	9 99 6	
dency.	1,782,434	1			1,155,850 173,500		28	137	7 1,503, 500	4,47,69	5 26	186	814,000	1,68,681		766		1 0000	
n n						,,,,,,			126,350	111111	,.,		192,075	39,229			22,50 55,00	0 10,8	
nein on ports in British		8,25 4,28,52 	0 1 58	79:	81,510 3 4.706,800			5 84								5,08		5 7,76,2	
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Calcutta to each Port during the following years, and its declared value.

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	m. 400	04.000.004	10.10.101		07.011	LUVINGENIUM		1 11777	OUNTROV	, work we have to	1 MM 161 EM.		. On 41P	er war boh	den nu man	- 13 050	NE AIM	1 MAR WAR ORA	OH AR MAR	

APPENDIX M.

Statement showing the Screw-houses and Jute-mills in Calcutta, the Suburbs, and other places

	Locality.			Dates when they were set up.	REMARKS.
	04 Chitmana and			1at A	
• [93, Chitpore road 8, Lal Bazar street		***	1st August 1872.	
İ	19, Old China Bazar lane		•••	10th ditto 1872.	
	28, Amratolla lane		•••	15th ditto 1872.	
	56 & 57, Strand road 82, Nimtola Ghât street	••• •••	•••	17th ditto 1872.	
	13, Sukca's lane	•••		17th ditto 1872.	
!	43, Strand road	•••		17th ditto 1872.	
ĺ	27, Ditto 21, Sukca's lane	•••	•••	17th ditto 1872, 20th ditto 1872.	1
	18, Amratolla lane	•••	•••	21st ditto 1872.	
!	113, Bow Bazar street	•••	•••	22nd ditto 1872.	
	62, Nimtola Ghât street 5, Sukea's lane	,	•••	30th ditto 1872. 2nd September 1872.	
ļ	109, Canning street	•••	•••	2nd ditto 1872.	
	33, Strand road	•••		2nd ditto 1872.	
	145, Chitpore road 20, Sukea's lane	•••		2nd ditto 1872. 2nd ditto 1872.	
	78, Kalutolla street		•••	3rd ditto 1872.	
CALCUTTA	178, Chitpore road		•••	7th ditto 1872.	
Calcula	13, Pollock street 12, Bonfield's lane	•••	•••	7th ditto 1872. 7th ditto 1872.	
	7, Grant's lane	•••	•••	9th ditto 1872.	
l l	309, Bow Bazar street		•••	9th ditto 1872.	
}	83, Clive street 11, Jackson's Ghât street	··· ···	•••	9th ditto 1872.	
ļ	113, Bow Bazar street	***		14th ditto 1872.	
[14, Old China Bazar stre		•••	14th ditto 1872.	
٠	11 Sukea's lane 98, Clive street	••• •••	•••	14th ditto 1872. 14th ditto 1872.	
İ	68, Nimtola Ghât street	••• •••	•••	14th ditto 1872.	
	4, Sukea's lane		•••	14th ditto 1872.	
1	28, Clive street 2, Clive row	•••	•••	20th ditto 1872. 4th October 1872.	
į	12, Pollock street	•••	•••	4th ditto 1872.	1
ļ.	62, Chunam goli		•••	4th ditto 1872.	
i	110, Canning street 4, Old China Bazar stree	et.	•••	4th ditto 1872. 2nd November 1872.	
	20, Treti Bazar street	*** ***	•••	27th ditto 1872.	
ļ	111, Bonfield's lane		•••	2nd April 1873.	-
<u>, </u>	18, Sukca's lane Cossipore	***	•••	2nd ditto 1873.	
į	Ditto, Gun-foundry		•••	Unknown. December 1865.	
	Cali Prosono Sing's road,	Chitpore	•••	August 1873.	
1	Nowabputty, ditto Galiff's Street, ditto		•••	April 1873. November 1871.	
	Balliaghatta road	'		December 1866.	•
Į	Cali Prosono Sing's road, (Chitpore		Ditto 1859	
0	Ditto, ditt		•	Ditto 1866. Ditto 1872.	
SUBURBS OF CAL.	Ditto, ditt		•••	Ditto 1871.	
	Ditto, ditt		:	November 1872.	
	Sugar-work lane, Cossipor Ram Gopal Ghose's lane,		•••	•••••	Under construction. Ditto.
1	Cossiporo road	***		*** *** ***	Ditto.
	Ditto	••• •••	•••	January 1871.	
	Chitpore Ghât lane		•••	Ditto 1866. [July 1872, and	
1	Nowabputty street, Chitpo	re	•••	January 1873.	
ļ	Burranagore, north of Cale	cutta	•••	Not known.	
24-Pergunnans	Prankissen Gorifa, near Nyhatty	*** ***	•••	1855. 1864.	Jute mills.
ŕ	115, Hurrogunge road			1009.	Ditto.
	75, Howrah road			******	
ļ	Do. do 182, Hurrogunge road	•••	•••	********	1
	46, Howrah road	•••	•••	*** * ***	
	11, Old Ghoosery road		•••		
	33, Do. do. 75, Do. do.	•••	•••		
1	103, Do. do.	•••		*** *** ***	5 Hydraulic presses.
j	126, Do. do.			******	1
١.,	129, Do. do. 139, Do. do.	•••	•••	******	2 Screw-houses.
flowban	140, Do. do.	•••	•••	********	2 Ditto.
\$	141, Do. do.		•••	141 : 4: 14:	3 Ditto.
	93, Luscarpara lane 10, Joya Beebee's lane		••	1,,,,,,	
!	11, Do. do.	•••	•••	*** *** ***	
[13, Do. do.	•••		111 000 100	1
	5, Khetter Mohun Mitte			*** ***	
!	97, Golabari road 5, Rosomari lane	*** ***		*** ***	8 Hydraulic presses.
	225, Grand Trunk road		•••	******	orlarmon lucases.
	227, Do. do.			*** ***	2 Screw-houses.
!	4, Cullen Place do.		• • •	•••••••	Jute mills.

lxxxi Statement showing the Screw-houses and Jute-mills in Calcutta, the Suburbs, and other places.—(Continued.)

	Locality.									hey were	REMARKS.
Ноосиг	{	Rishra Dacca		444				lst 1	January in in	1869. 1856. 1870. 1871.	Jute Mills. Ditto.
DACCA	•	Do Naraingunge Dacca		•••		•••		2 1 6	in in from	1873. 1867 1868. 1873	and 3 others. Hydraulic press.
Pubna		Do Serajgunge		•••		•••	•••		Unknow		Jute mills.

Note.—There are six Jute Mills:

1. Barnagore Jute Mills.
2. Serajgunge Jute ditto
3. Ishera Jute Mills.
4. Serampore Mills.
5. Gouripore Jute Mills
6. Fort Gloster ditto

Three new mills are being erected.

APPENDIX N.

Jute-Culture in the United States.

Experiments in cultivating jute in the Southern States thus far indicate that both the climate and the soil are well adapted to its growth, and there is a fair promise that its production will become an extensive and profitable industry in that section. Its fibre supplies material in manufactures, for which there is a rapidly increasing domand, and which, except to a very limited extent, does not take the place of cotton; while, therefore, it will not supplant the latter, nor compete with it in the market, it may enlarge the area of profitable rural industry in the South. It is claimed that were the South to divide the labor it now bestows exclusively upon cotton between that and jute, the result would be an increase in the value of the cotten crop; it having been proved that beyond certain limits an increase in the product occasions a diminution in the total value; that it supplies the raw material for coarse fabrics, which are now largely imported by the cotton growing States, but which might be manufactured by their unskilled female laborers at a saving of millions; that it can be raised and prepared for market at a greater profit per acre than cotton.

The following communication has been received from Mr. E. H. Derby of Boston, who is an enthusiastic believer in benefits to result to the South, and so to the whole country, from

jute culture:

As the jute plant has been acclimated in the Southern States and I have exerted myself to aid in its introduction, many questions have been addressed to me from the South as to the culture and harvesting of the plant. I have consequently written to a friend in India, and subjoin extracts from his reply, which will be useful to the planter if published in your valuable report. I am convinced by this reply and by other letters from the South that the rich lands of Florida, Louisiana, Texas, and Mississippi, will, with fair cultivation, yield 3,500 lbs, or ten bales, of fibre to the acre, in place of one-tenth of that amount of cotton. I am convinced also that it can be produced at less than one-tenth the cost of cotton, that the caterpillar will not touch it, and that if planted around the cotton fields it may possibly protect them from that voracious insect. I am also led by my letters to hope that it will attain to its full growth in three to four months, and that the same field may yield two crops in one season. I have just returned from Scotland, where I visited the jute factories in the flourishing city of Dundee, where the import and manufacture of jute is making wonderful progress.

The subjoined table gives in tons the import and manufacture of jute in that city

since 1837:

				Tons.
In 1838	 •••	•••		 1,136
,, 1847		,	•••	 6,9 66
,, 1854	 	•••		 16,590
,, 1872	 • • •			96,000

Since 1854 the increase has been about 500 per cent., and in this interval of time the cotton manufacture has not grown at one-fifth of that rate. Some of the jute yarn which saw at the factories is spun very fine and sold for 8 or 10 cents a pound. It is used for bags and carpets, and some of the latter, handsomely coloured, have sold for 16 cents per square

yard. It is also interwoven with silk, linen, and woollen threads into cheap cloths.

By the subjoined extracts you will notice that the jute seed from one acre will suffice to plant fifty acres, and that the plant is usually gathered some weeks before the seed ripens. I suggested this idea last summer to Mr. Chapman of Point Coopee, but presume that most of our planters have this year allowed their seed to ripen, in which case they may have plenty of seed but inferior fibre, and possibly require the ramie machine to separate the fibre from the stalk, and possibly thus make it available for coarse, if not for fine, fabrics. The progress of events convinces me that the jute is just what the South requires to diversify its industry and to fill up the gap when cotton is a failure. With the growing demand for it, jute promises to pay much better than cotton.

I noticed in the jute mill at Dundee that after the jute was sorted a woman placed a layer of it on the floor, then sprinkled it freely, first with water and afterwards with oil; she then placed another layer over that and sprinkled it in the same manner, and so piled

up layer upon layer. This sprinkling was before the fibre was spun.

An extract from the reply above mentioned is given, as follows:

The quantity of jute and seed produced to an acre depends greatly on the richness of the land it is planted on. Serajgunge, Naraingunge, Dacca, and other north-eastern districts,

where about four-fifths of the total crops are raised, produced from 2,000 to 3,000 pounds of jute on an average; in some cases, however, as much as 4,000 pounds are produced. yield of seed is about 1,000 to 1,200 pounds per acre. In the country fifty miles around Calcutta, the production of which is called dessee or country jute, the yield is smaller, being only about 600 to 1,000 pounds of fibre, and more seed, say 1,500 to 1,600 pounds per sore; but on rich, damp lands the product is almost as much as in the north-eastern provinces.

The dessee description was used only for local consumption until about five years ago, when shipments of it to England began, and both the shipments and production of it are Jute is sown broadcast, and about 22 to 28 lbs of seed are increasing every year. required to an acre. In the north-eastern provinces it is planted in February and March, and is cut about the end of June and beginning of July; the dessee is sown in July and cut in August and September. On rich land it grows and ripens quicker. In the northeastern districts, when grown on rich soil, the diameter of the stalk at the bottom is from three quarters of an inch to one and a quarter inches, and the length from seven to ten feet, and sometimes, but rarely, longer and thicker. The country jute is four to seven feet long and one-half to three quarters of inch in diameter. The plants are cut about three feet long and one-half to three quarters of months and managers. The butts are cut at the inches above the ground, excepting dowrsh, which is uprooted. The butts are cut at the time of bailing the jute for export in Calcutta. When the stalks are cut they are covered through certain processes, becomes fibre. The planters cannot tell at the time of cutting the stalks, whether any, or how far from the bottom, any will The stalks are cut about a month before the seed ripens, and the poorer plants are be hard. generally let go to seed. Jute made out of the plants-producing seed is hard and barky. The unripe seed cut with the stalks is of no use. It grows best on rich, moist ground, but not on low ground. Castor oil cake is the best for it, and next to that cow manure; but the country planters, as the ground is naturally rich, use no manure whatever. An acre of cotton costs much more than an acre of jute. Jute and cotton do not interfere with each other in the least; cotton grows in the North-Western Provinces, Central and Southern India, while jute is raised in Bengal. The little cotton that Bengal produces, and the little jute the cotton districts produce, are of poor quality, and only raised for local consumption. For the last few years jute has been encroaching on the linseed crop, as the same ground is suitable for both

The statements above answer in part the inquiries in the subjoined communication addressed to this Department by William M. Hazzard of Georgetown, South Carolina:

The cultivation of rice is attended with so many difficulties and risks, and such an outlay of money, with little or no remuneration, that we shall be obliged to abandon our lands or introduce some plant less liable to the disasters to which a rice-crop is exposed. From experiments I have seen made I am satisfied that our lands are well adapted to the growing of jute. This plant, whenever tried in the rice-fields, has grown most luxuriantly. I have thus far failed in my efforts to obtain seed enough to plant three or four acres the coming year. I should be glad to obtain all the information the Department of Agriculture can furnish in reference to the time of planting, mode of cultivation, time for cutting, and mode of curing and preparing for market.

A correspondent at Charleston, South Carolina, reports that he planted jute seed, June 10, on very poor land, and, October 1, the plants had grown to a height of six feet.

That it can be raised at the South with success and large profit, he has strong faith.

The following extracts from correspondents give the results of their own experiments in

growing it:

Orange County, Florida.—I ploughed up and thoroughly prepared a half acre of medium grade pine-land, and sowed the jute in drills, May 23. It came up well, but owing to the excessively hot, dry weather, it all dried up. On the same day sowed a small plant in a bay-head. It came up and grew finely. I am now gathering the seed. Some of it is 12 feet high, and all as high as I can reach. Sowing that on damp, rich soil it will here succeed finely. This bay-head is muck several feet deep, which I cleared off and limed Upon it bananas grow from 12 to 15 feet high.

Muscogee County, Georgia:—I considered the experiment in jute-raising a success. The cultivation is simple and the cost of production small. I had seeds sown broadcast on broad beds; some on sandy river land, and the rest on stiff clay land. The latter did very much better than the former. The cultivation was the same, but many of the plants on the sandy soil died out after having attained their full growth, while those on the clay lands remained green and vigorous, and matured their seed. The plant requires moisture. The seed was sown in May, and the plants could have been cut in September. A freet on the seed was sown in May, and the plants could have been cut in September. A frost on the 15th of October, which injured the cotton, did not leave its mark on the jute. It attained the height of 15 feet, and in appearance somewhat resembles a plantation of young peach trees before being removed from the nursery. I had the plants out in October and steeped ten days in stagnant water, after which the fibre was easily stripped off.

New Orleans, Louisiana.—Jute seed received from the Department of Agriculture was planted on the 11th of April. The soil was well ploughed and harrowed, and in good condition. Patch No. 1, rich soil, 3 feet above ordinary gulf-tide, planted in drills 31 feet apart;

patch No. 2, very rich soil, one foot above tide, planted in chops 4 feet by 2½; patch No. 3, same as No. 2, planted broadcast; soil very dry at planting. Seed covered one-half inch deep did not germinate until rain on the 22nd of April. May 12.—Passed the cultivator through patches 1 and 2. May 27.—Chopped with hoe the large weeds from the same; jute 2 feet high; no further cultivation. Patch 3 received no attention after planting. Almost continuous drought this summer; jute suffered, but not so much as corn and other crops. July 10.—Cut a portion of patches 1 and 2 nine and ten feet high; put the same in bayou-water for seven days, and got beautiful fibre the entire length of the plant. July 15.—Planted again the land which was cut on the 10th. At this date, October 10, this second crop is 8 feet high, looking well, although it has suffered much from excessive drought. Wishing to save as much seed as possible for a more extended planting the next season, I could afford but a fractional part of an acre on which to arrive at some idea of what amount of fibre we may expect per acre. On the 28th of August I cut a portion of patches 1 and 2, plants measuring from 11 to 13 feet; seed-burs about half grown. (This was in accordance with direction in agricultural report of 1871, page 172). The quantity of fibre saved satisfied me that the yield of these patches would be quite equal to 4,000 pounds per acre.

Patch 3, broadcast, is exceedingly dense and heavy; portions being matted with native weeds, it is impossible to make a reasonably accurate ostimate of yield per acre.

Wishing to test the aquatic qualities of jute, I selected patch 2 as liable to overflow by heavy rain. The season being almost entirely without rain, I transplanted some of my July planting, when $2\frac{1}{2}$ feet high, into water several inches deep. The plants have continued to grow finely, and are now looking well; this in a continuous flood of water for several weeks.

The above correspondent (F. W. Johnstone) states:—"The seed we are now gathering appears larger than that planted—evidently improved. It takes just 600 of the Calcutta seeds to equal in weight 500 of the Louisiana." But it is quite probable that when the newly gathered seed is thoroughly dry it will lose this excess in size and weight. Under date of October 22 he forwarded to the department three samples of jute-fibre, with a report, of which the following is an abstract: sample No. 1 was cut four and half months from sowing, when the most forward seeds were half ripe; No. 2 three months from sowing, when the first blooms appeared. This he thinks the best time, as at that stage female labour can do the cutting, and there being then only one quality of fibre, the expense of slow and tedious assorting and of cutting butts is avoided. No. 3 was from the second crop, planted July 15, and cut two months latter. He further reports:

Some of the July planting, second crop, is now fully matured for fibre; some planted the first week in August will make a full crop, unless the frost is unusually early. Inquiries from South Carolina to California are being made of me for seed for next season. I have none to spare. Mr. Chapman, of Red River Landing, is asking \$5 per pound. He has two varieties, the pod-bearing and the bur-bearing seed. The pod-bearing variety he thinks much superior to the other. This he got, I think, three years ago, from the Department of Agriculture. The seed the department sent out last spring was exclusively the bur-bearing, which is brown in color, while the pod-bearing is green. I have some plants which have been

flooded constantly for two months now seeding in six inches of water.

Charleston, South Carolina.—I have done what I could to encourage experiments with jute, and have distributed hundreds of packages of seed raised by myself. Experiments have been in the highest degree encouraging. The plant seems to flourish quite as well as in India.

Mr. H. H. Stevens, of Webster, Worcester County, Massachusetts, a manufacturer of jute imported from India, to whom this department sent a sample of that grown in Louisiana for examination, reports that in length, strength, and color, it is fully equal to India jute. He adds:

The department should do all in its power, and, if necessary, ask of Congress more power and more money, to extend the culture of this fibre in the country. Twenty-seven years ago in Dundee, Scotland, the question was whether there was any value in jute. To-day, of an export from Calcutta of nearly, if not quite, 3,000,000, bales per annum, Dundee consumes a large share.

The department has received from gentlemen in Louisiana and Georgia very encouraging accounts of their experiments, together with specimens of the jute fibre which they have produced. Mr. Thomas H. Dunham, of Boston, to whom a sample was forwarded, writes as follows:

The quality is very superior. The market is just now depressed very much. Some parties here have lost heavily on imported jute-butts, and this season (before the fire) India goods were imported at immense loss. The present rate is 6 to 8 cents a pound (gold); the usual rate 10 to 13 cents (gold). Your sample is very superior, and at 10 cents (gold) it would be safe to quote.

You will understand that our merchants do not favor home growth of jute, or rather make light of it; but my advice to you is leave no step possible to push the jute growth;

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make every effort to get it raised here. Beyond and above all obstacles push it on. The country will sustain this to any extent. The motive is greater than you can have any idea of. The moment you get the growth started, you will be fully assured, as capital will follow quickly, as in cotton.

Suppose it were a new growth of cotton, no one would doubt the success, or the aid needed. Our growth of jute will nearly equal half the cotton crops. We can cut off India supplies, as we have done in cotton.

The interests of our merchants are so interwoven with India importations that they will (as they do) say "You will never get any quantity grown," and make light of it. But your sample shows that its cultivation is feasible, and it must pay when the market changes. All orders to India are stopped now, and the revulsion will bring jute higher here, within the next year, than it has ever been.

To

THE

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Under instructions received from His Honor the Lieutenant-Governor of Bengal, and contained in His Honor's Resolution on the Jute Trade of Bengal dated February 4th, we beg to wait on you with the following memorandum explanatory of what the jute plant is, as also with the questions we shall be glad if you will answer respecting the cultivation, &c., of the plant in your district. The fibre known as jute is produced from a plant or plants belonging to the natural order of Tiliacoæ (Limes or Lindens) of which there are between three hundred and fifty and four hundred known species; amongst these the Corchorus, a plant of which different kinds seem to be indigenous to many parts of the world; it is chiefly, however, a tropical plant, and, as far as we can at present ascertain, the descriptions which are found in Bengal are Corchorus capsularis and Corchorus olitorius, and from one, if not both, of these the textile material called jute is produced. The leaves of the Corchorus clitorius, if not of both descriptions, are also used as a pot-herb and known in Syria and Egypt, where the plant is cultivated as a vegetable, as Jew's mallow.

Both the above-named species resemble each other, and their description is as follows:—
Annual plants growing ten to twelve feet in height with a straight cylindrical stem

about as thick as a man's little finger, seldom branching until near the top.

Leaves of a lively green color, and smooth, alternate on foot stalks, oval or ovolanceolate in shape, margins serrated with the two lower serratures terminating in narrow filatures. The flowers are small and yellow, the calyx consisting of five pieces or sepals and the corolla of five yellow petals. The flower-stalks are one or two flowered.

The chief distinction between the two above-named species lies in the seed-pods or capsules, which, of the C. capsularis, are short and globose, whereas of the C. clitorius they

are long and nearly cylindrical.

We are not, however, by any means satisfied that only two descriptions of Corchorus are grown and produce jute in Bengal, but to ascertain this for certain it will be necessary to wait until the new crop has grown. There are other fibre-yielding plants which are confounded with, or, at any rate, of which the fibre is sold amongst, and called jute. We can of our own experience mention three, Mesta, Mettee, and Rajuat or wild fibre. These are no doubt plants belonging to the "Malvacew." As far as we can ascertain, the Mesta is the Bengallee name for the "Hibiscus Cannabinus," of which the description is as follows:—Stem prickly, six to eight feet in height, deeply-parted leaves somewhat resembling those of hemp. Flowers, pale yellow with a dark purple blotch at the bottom of each petal. A plant more like jute than hemp, and sometimes called Bastard Jute. Leaves are eaten as a pot-herb.

Of the others we can ascertain nothing at present. We may also mention the Sunn hemp; although this fibre is sold, we believe, quite distinctly from jute, the plant is, as far as

we can learn, the Crotalaria Juncea.

The native names by which jute is generally known in Bengal are pat and koshta.

We now wait on you with sundry questions, and we shall feel obliged if you will furnish us with the information asked for at your earliest convenience.

1st.—State the approximate amount of arable land in your district, as nearly as you can estimate it.

2nd.—The proportion of arable land under jute in your district during seasons 1872 and 1873. Has the cultivation of the plant increased or decreased of late, and why? Specify the tracts in which most jute is grown and their character.

3rd.—Mode of jute cultivation, preparation of the ground, at what time is the seed sown, and at what time is the crop out.

4th.—Cost of production in detail.

5th.—Outturn per biggah.

6th.—The description of soil best suited for the growth of the plant in your district. Is the quality of the jute deteriorating from the present system of cultivation, and do you consider that the cultivators have been reckless in selecting the land on which to grow the plant?

7th.—State the rotation of crops practised in your district with reference to the cultiva-

tion of jute.

8th.—Give all information that you can regarding plants grown in your district, the fibre of which is confounded with or sold as jute.

9th —The effect on the growth of the plant of excessive rain, or floods, as also of drought,

and what sort of season is best suited for its cultivation.

10th.—How long has jute cultivation been carried on in your district to any extent, and

to what extent has it increased, or otherwise, year by year.

11th.—How is the present cultivation of jute affecting the country and population, and its effect on the production of the necessary amount of cereals, &c.

How is soil affected by jute cultivation, and do the growers manure the land, and how, or do they employ any other means of renovating it?

12th.—Mode of preparing jute for the market from the time it is cut, and can you suggest improvement on the present system?

13th.—How is the jute transported from your district, and to what mart or marts taken?

State the cost of such transportation.

14th.—The amount exported from your district last season and estimated amount this year.

15th.—Through how many and what hands does the jute pass?
16th.—By what class of ryots is jute cultivated, and the proportion of the population employed in its cultivation?

17th.—State the average price of rice in your district in 1869, 1870, 1871, 1872 and

at the present time.

18th.—What are the different native names by which jute is known in your district?

19th.—Collect and forward a fair sample of the different qualities of jute grown in your district, as also of other fibros sold as jute or otherwise.

HAMILTON ANSTRUTHER, HEM CHUNDER KERR,

On special duty to inquire into the production of, and trade in, Jute.

CALCUTTA, 27, DALHOUSIE SQUARE, The 11th February 1873.

The following questions put by the Commission were circulated with Government Circular No. 25, dated 9th June 1873, amongst Divisional and District Officers, with a view of eliciting information as regards the manufacture of jute:-

The place or places where jute is used in manufactures by the natives to any (1) extent.

The description of manufactures. (2)

The average quantity of jute used annually in each place, and the description.

Are the manufactures for local use only, or for export. (4)

If the manufacture be gunny-bags, state their average size and weight, and **(5)** the approximate number manufactured in each place.

The following questions were circulated by the Commission, through the Government, amongst Divisional and District Officers regarding the plants, the fibres of which can be used in the manufacture of paper:-

The local names by which the plants yielding indigenous fibres for paper, as far as could be ascertained, are given below, together with a popular description of the plants so that they may be identified with little or no difficulty. If there be any other names current for these or any of these plants, be good enough to mention them.

Abelmoschus esculentus.—B. ভেঁড়ল (Dhenros), H. বাদভোৱাই (Ramturai).—Common in Bengal, grown as edible. Annual, herbaceous; stems hairy, leaves alternate, cordate, strongly toothed, three to five-lobed, scabrous on both sides, on long petioles; calyx spathaceous, very soft, involuced of ten leaves; deciduous; pedicles short, capsule pyramidal, furrowed, bristly; petals, pale yellow, dark crimson at the base. Flowers all the year.

Abutilon indicum—B. (Petaree).—Grows in Bengal; shrub 2-3 feet, leaves cordate, somewhat lobed, soft, shortly tomentose; unequally toothed; calyx, five-cleft, without an involucel; pedicels erect, axillary longer than the petioles, jointed near flowers; corolla spreading; capsules truncated; carples 11-20 acute, not awned, hairy; flowers longish, orange-coloured. Flowers in July.

Hibiscus cannabinus.—B. মেন্তা পাট (Mesta pat).—Grows in Bengal; stem herbaceous, prickly leaves palmately five-partite, glabrous; segments narrow lanceolated, acuminated, serrated; flowers almost sessile; axillary solitary; leaves of the involuced about 9, subulate, prickly, with rigid bristles, shorter than the undivided portion of the calyx; flowers, pale sulphur, with a deep purple centre; seeds few; glabrous; fruit nearly globose. Flowers in June, July.

Adansonia Digitata (Baobab) is not known to grow in Bengal; tree of moderate height; trunk enormous, 30-40 feet in circumference; leaves digitate, quinate, glabrous, peteoled; leaflets elliptical, slightly acuminated; petules and peduncles pubescent; calyx, five-partite, pubescent, silky inside; petals five, spreading, at length deflexed; flowers axillary, solitary, on long pedicels, stamen-tube adhering to the base of the petals; fruit, a large oblong downy

pericarp; flowers large, white, with purplish anthers.

Crotalaria juncea.—B. A. (Sunn).—Grows in Bengal; small plant, 4-8 feet erect, branched more or less, clothed with shining silky hairs; branches terete, striated, stepules, and bracts setaceous; leaves from narrow linear to ovate, lanceolate, acute; calyx, deeply five-cleft, densely covered with rusty tomentum. Flowers distant; legumes sessile, oblong, broader upwards, about twice the length of the calyx, tomentose and many-seeded; flowers yellow. Flowers in November and January.

Crotalaria tenuifolia (Jubbulpore hemp), B.জ্বলপুরি সম (Jubbulporee sunn), is not known to grow largely in Bengal; perennial, ramous, straight, furrowed, hoary; leaves linear, sereceous undorneath; stopulos minute, subulate; racemes terminal; legumes sessile, clavate,

many-seeded.

Calotropis gigantea.—B. আকল্ (Akanda), H. মোদার (Muddar).—Common in Bengal: shrub 6-10 feet; leaves stem-clasping, decussate, oblong, evate, wedge-shaped, bearded on the upper side at the base, smooth on the upper surface, clothed with woolly down on the underside; segments of corolla reflexed, with revolute edges, stameneous; corona five-leaved, shorter than the gynostegium; leaflets keel-formed, circinnately recovered at the base, incurved and subtridendate at the apex; umbels sometimes compound, surrounded by involucral scales; follicles ventricose, smooth; seeds comose; flowers rose-color and purple mixed. Flowers all the year.

Dæmia extensa.—B. ছাগলবাটি (Chhagulbuntee).—Grows in Bengal; turning, shrubby; leaves roundish, cordate, acuminated, acute, auricled at the base, downy, glenceous beneath stameneous; corona double, outer one ten-parted, inner one five-leaved; peduncles and pedicles clongated, filiform; margins of corolla ciliated; flowers in umbels, pale green, purplish inside; follicles ramentaceous. Flowers in July to December.

Daphne cannabina is not known to grow in the plains of Bengal. Shrub 5-6 feet; branches ascending; leaves ovate, lanceolate, quite entire, smooth, umbels axillary towards the ends of the branches; corolla salver-shaped, with a long tube; segments minute, ovate; filaments in two rows within the tube; berry ovate, red; flowers yellow. Flowers in January and February.

Cannabis sativa.—B. 1981 (Ganja).—Grows in Bengal, specially Rajshahye and Orissa. Annual; plant 4 to 6 feet, covered all over with an extremely fine rough pubescence; stem erect, branched, green, angular; calyx, five-parted; leaves, alternate or opposite on long petioles, digitate with linear lanceolate sharply serrated leaflets, tapering to a long smooth point, flowers in spikes, axillary, clustered, small, greenish-white; males, lax and drooping; females erect, leafy at the base; flowers all the year.

Girardinia heterophylla is not known to grow in the plains of Bengal. Annual, erect; leaves alternate, long-petioled, covered with stringing hairs; flowers small green. Flowers in September and November.

A ferocious-looking plant; if incautiously touched, this nettle will produce temporarily a most stinging pain.

Bohmeria nivea (Rheea kunkhoora).—Grown in Assam, Rungpore, and Dinagepore. Flowers small, greenish-yellow; flowers in October and November; bark abounding in fibres of very great strength and fineness. To procure them the young shoots are cut down, dried, and beaten, after which the rind is stripped off.

Antiaris saccidora is not known to grow in the plains of Bengal. Large tree; leaves alternate, ovate, oblong, acuminate, entire glabrous above, slightly villous beneath; capitule axillary, aggregated; drupe, shape and size of a small fig covered with purple down. Flowers in October.

Cocos nucifera.—B. Affara (Narrikael).—Common in Bengal. Spathe skillary, cylindric, oblong, terete, bursting longitudinally; spadix erect or nearly so, winding; male, flowers numerous, approximate sessile above the female; calyx, three-sepalled; leaflets, minute, broadly cordate, fleshy; petals three; female flowers usually one (occasionally wanting) near the base of each ramification of the spadix; corolla six-petalled.

Borassus flabelliformis.—B. ज्ञाल (Tala).—Common in Bengal; trunk 30 to 40 feet, everywhere marked with old cicatrices of fallen leaves; fronds composed of several folded linear lanceolate divisions united as far as the centre; flowers male and female on different trees; drupe, sub-globular, flattened at the apex, filled with soft yellow pulp; nuts three; perforated

at the apex.

Areca catechu.—B. বুগরি, গুড়া (Soopari, gooah).—Common in Bengal. Palm; spathe double spadix, much broaded; male flowers numerous, above the female, sessile; calyx, one-lobed, three cornered, three-partite; petals three, oblong smooth; stamens two-partite, inserted round the base of the style; female flowers one to three at the base of each ramification, sessile; calyx, five-lobed; flowers small, white, fragrant. Flowers in April and May.

Sanseviera zeylanica.—B. মুহা (Moorva), catateas (Borachucker).—Grows in Bengal. Stemless; roots perennial; leaves radical, exterior ones shorter, spreading, and more broad; interior ones nearly erect 1 to 4 feet long, semi-cylindric, grooved on the upper side, sharply acuminated at the apex, somewhat striated, smooth; scapes rising from the contro of the leaves, 1 to 2 feet long, erect, with four to five alternate sheaths between the raceme or flower-bearing part and the base; racemes erect, about as long or longer than the scape below the flowers, striated; smooth, flowers greenish-white; erect, fascicled, 4 to 6 together; pedicles short, one-flowered; corolla one-petalled, funnel-shaped; calyx none. Flowers in August and September.

Yucca gloriosa.—B. লান্টান ফুলেরগাচ (Lanthana flower-tree).—Common in Bengal. Conspicuous for their noble show of lily-like white flowers, as well as for their long sword-

shaped leaves, terminated by a thorny point.

Musa paradisiaca.—B. 香門, 支刺, 杏門, 木門, 木門 (Kala, rombha, kanehkala, kadali).— Very common in Bengal. Herbaceous; stem, simple, thickly clothed with the sheathing petioles of the leaves; leaves forming a tuft on the apex of the stem; each division enclosed in a large spathe with male flowers at the base, female or hermaphrodite ones at the upper end; perianth with six superior divisions, five of which are grown together into a tube slit at the back, the sixth is small and concave; style short; fruit oblong, fleshy, obscurely three to five-cornered, with numerous seeds buried in pulp; flowers yellowish-whitish. Flowers all the year.

Musa textilis is not known to grow in Bengal. Description almost the same as Musa

paradisaica.

Agare Americana.—B. কালোড, কোজা (Kanor, konga).—Grows in Bengal; stems cylindrical, woody; leaves about six feet long, bluish green, ending in sharp spines; flowers, greenish yellow.

Bromelia ananas—B. SIFTAN (Anaros).—Common in Bengal. Perennial; two to three feet; leaves ciliate with specious points; calyx three-parted petals, three spikes; tufted;

flowers small, bluish. Flowers in April and May.

Corchorus olitorius.—B. গ্রেড, বল—প্রেড, কেন্সের্ড, (Pât, bon-pat, koshta).—Very common in Lower Bengal; annual; five to six feet erect; leaves alternate, ovate, acuminated, serrated, the two lower serratures terminated by a slender filament; peduncles 1-2 flowered; calyx five-sepalled; petals five; capsules nearly cylindrical, ten-ribbed, five-celled, five-valved; seeds numerous, with nearly perfect transverse septa; flowers, small, yellow.

Constorus capsularis.—B বি নালিডা পাট, নালিডা, পাট, বিভা পাট, পাট কোন্তা (Ghee nalita pát, nalitapát, teeta pát, pát, koshta).—Very common in Lower Bengal; annual; five to ten fee; calyx deeply five-cleft; petals five; leaves alternate, oblong, acuminate, serrated, two lower serratures terminating in narrow filaments; peduncles short; flowers whitish yellow

in clusters opposite the leaves; capsules globose, truncated; wrinkled and muricated, fivecelled; seeds few in each cell, without transverse partitions; in addition to the five-partite cells, there are other five alternative, smaller and empty.

Saccharum munja.—B. नत, (Shor), H. मङ्गा (Munja).—Grown in Bengal. Culms straight, eight to twelve feet, smooth; leaves channelled, long, linear, white-nerved, hispid at the base inside; panicles large, oblong, spreading; ramifications verticelled; flowers hermaphrodite;

corolla two-valved.

Flax.—B. মাসনা (Moshina), H. ভিস (Tishi).—Grown in Bengal. Annual; erect, glabrous; leaves alternate, lanceolate or linear, acute, entire, panicles corymbose; sepals ovate, acute or muconate, with scarious or membranaceous margins; petals slightly crenated, three times larger than the calyx; stamens alternate with the petals, having their filaments united together near their basis; capsule roundish pointed at the apex, five-celled, each cell divided into two partitions containing a single seed; seed eval, smooth, brown or white, mucilaginous outside with oily and farinaceous kernels; flowers blue. Flowers in December and February.

Rice straw.—B. বিচালি, থড় (Beechalee, Khor).—So very common in Bengal, and so

well known to the peoples that it needs no description.

Bamboos.—B. ব ব (Bans).—Very common in Bengal, and well known to the people. Needs no description.

Refuse of the Sugarcane.—B ইক্ষু কিন্তে, (Ikhoo shitee, Ikhoo chhibray).—

Very common in Bongal; no description is needed.

2. Mention the cost of cultivation of all or such of these plants as are grown in your district, and the yield per acre, as also the cost of bringing the same to Calcutta either by

country boats or steamers and rail. Inquire and communicate the price at which these or any of these fibres are bought and sold, and the mode of buying and selling the same. Describe the soil generally selected for the cultivation of these plants, as also whether there is room for the extension of their cultivation. . Describe also the mode of preparing the fibre.

4. Is there any export trade in any of these fibres in your district? If so, please name

the places where they are sent.

5. Is paper manufactured in your district? If so, please mention the material of which it is made and the process and cost of making it, forwarding samples of the different kinds of paper manufactured, together with a memorandum of price at which it is sold. State the amount of fibre annually used in your district in the manufacture of paper, and the quantity of paper made, as nearly as you can estimate it.

6. Please note whether there are any other plants the fibres of which can be manufac-

tured into paper.

7. Although cocoanut palm and plantain trees, as also sugarcane and paddy plants, are grown extensively in almost every part of Bengal, we presume they are never employed in the manufacture of fibres. Do you think if the people were told that very useful fibres could be prepared from them, they would (with or without aid and encouragement) come forward to undertake the preparation of fibres from such plants for use or trade? As also, whether, under similar circumstances, they would undertake the cultivation of any of the plants named in the Government of India's letter No. 1-129 of the 26th June last, which is now not grown in your district.

8. Collect and forward samples of the fibres mentioned in Government letter above

alluded to.

N. B. Information as regards the price, export, &c., of jute need not be given, as I have already got it.

APPENDIX P.

Statement showing the export of Jute during the year 1872-73 from the undermentioned districts.

v anouning the	caps. c s	•	,		-		
Name of District.							Exports in maunds.
Rungpore							$2,\!258,\!508$
Mymensing							$1,\!850,\!000$
Dacca		• •	• •				1,160,411
	• •	• •			•. •		1,000,000
1 1	• •	• •	• •				260,284
Bogra	• •	• •	• •	• •			250,000
Backergung		• •	• •	• •	• •		220,000
-Furreedpore	•	• •	• •	• •	• •	• •	200,000
Purneah			• •	• •	• •	• •	160,000
${f Jessore}$				• •	• •	• •	150,000
Goalpara	·					• •	
Rajshahye					• •		130,000
Baraset (24	-Pergunn	ahs)			• •	• •	100,810
Lohardugg				• •			17,500
Culna (Bur							15,000
Sylhet							9,000
	• •						6,817
Noakhally	Danamana	 	• •	• •			5,000
Alipore (24	_	ans)	• •	• •	• -		2,700
Malda	• •	• •	• •	• •	• •		$2,\!500$
${f Balasore}$		• •	• •	• •	• •	• •	-,-